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Biennial Report

OF THE

REGENTS

OF THE

University of Colorado.

92-94

Boulder, October 1, 1894.

UNIVERSITY OF ILLINOIS
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UNIVERSITY OF COLORADO.

BOULDER.

To the State Superintendent of Public Schools, Colorado.

DEAR SIR:

The Ninth Biennial Report of the State University is hereby presented by the Regents.

Departments.

The departments of the University remain nearly the same as described in the last report, and are as follows:

COLLEGE OF LIBERAL ARTS.

CLASSICAL COURSE, leading to the degree of B. A.

PHILOSOPHICAL COURSE, leading to the degree of Ph. B.

SCIENTIFIC COURSE, leading to the degree of B. S.

LITERARY COURSE, leading to the degree of B. L.

GRADUATE COURSES, leading to the degrees M. A., M. S., and Ph. D.

COLORADO SCHOOL OF APPLIED SCIENCE.

CIVIL ENGINEERING, leading to the degree of B. S., (C. E.)

ELECTRICAL ENGINEERING, leading to the degree of B. S., (E. E.)

COLORADO SCHOOL OF MEDICINE.

COLORADO SCHOOL OF LAW.

COLORADO STATE PREPARATORY SCHOOL, conducted by the University.

Attendance.

The attendance has strongly and steadily increased in spite of the financial depression, and this fact is one of the most gratifying which the Regents have to report. That in a period of financial prosperity this increase would have been much greater can not be doubted.

The following table shows the attendance during each of the last four years. The enrollment for 1894 will yet be increased considerably by new names.

	UNIV. STUDENTS.	PREP. STUDENTS.	TOTAL.
1891-2	66	103	169
1892-3	129	158	287
1893-4	159	146	305
1894-5 (to Oct. 1)	181	182	363
The students of this year are distributed as follows:			
College of Liberal Arts.....			113
Colorado School of Applied Science, (entering class).....			10
Colorado School of Medicine.....			41
Colorado School of Law.....			17
			181
Colorado State Preparatory School.....			182
			363

College of Liberal Arts.

Since the last report a Professor of Philosophy and Pedagogy has been added to the College Faculty. This important chair could no longer remain vacant. Philosophy is a department of every College and University, and Pedagogy is finding a place in nearly every progressive University. This chair is especially important in state universities which are a part of the Public School system, and must bear an intimate reciprocal relation to some of the other functions of that system. Of the men and women who go forth from the Collegiate Department, many will become special instructors in high schools, principals, or professors in college. The history and philosophy of education have a practical value for all people; and they are important as a part of liberal culture.

Last year the collegiate work was completely reorganized, and the most modern thought upon university problems was considered in its relation to the conditions in Colorado. The result met the unanimous approval of the Faculty. and it is presented to the State and the country with confidence in its excellence. Only the most progressive American universities have as yet attained this standard of curriculum. As formerly four degrees are recognized. Certain required studies called Basic are common to all the courses. Each course has certain Characteristic studies appropriate to the degree sought, as Greek for the B. A. degree, and Science for the B. S. degree. The remainder are free electives.

The large number of electives enables the student, in addition to his general training, to become proficient in some specialty according to his aims and inclinations. In these days the theory that education is simply a means to the end of selfish enjoyment of the knowledge emotions, and serene contemplation of Beauty and Goodness is abandoned, and a man's training, in addition to enlarging his manhood and increasing his happiness, must contribute to more useful citizenship. Every student to-day in a modernized university may develop his mind broadly and at the same time direct his knowledge and power toward some one field of thought and useful activity. The theory is, know many things, but also much of some one thing.

The standard of the University has been so often shown that attention hardly needs to be called to it. An unusually large per cent. of the Professors possess the Doctor's degree in their specialties, and several have made important contributions to the literature of their subjects. It is safe to say that no university, in proportion to its size and needs has an abler body of professors. That the University is prepared to meet the ends for which it was founded may be claimed with entire confidence.

Graduate Courses.

The modern university must not only provide for collegiate and professional studies, but must furnish additional instruction and facilities for advanced work. This is to be the characteristic feature of the coming universities, and each State university must maintain Graduate Courses. Most of the departments already offer either majors or minors in advanced lines, and the very remarkable number of thirteen graduate students is enrolled this year. Part of these are candidates for the Master's degree which requires one year of additional residence, and part are candidates for the Doctor's degree which requires at least two additional years of residence. Residence for the Doctor's degree is at present interpreted to mean such proximity to the University as will enable candidates to report to the professors at frequent intervals for direction, instruction and examination. The standard of the degree is carefully guarded.

School of Applied Science.

In accordance with the promise made two years ago, a School of Applied Science has been opened and an entering class of ten gives great encouragement for the future. This might be reckoned as a part of the College of Liberal Arts, as it actually is in Michigan and many other universities. It is impossible to escape the logic of events demanding provision for civil and electrical engineering for college students. Much of Civil Engineering is required as laboratory work in a collegiate department of Mathematics, and much of Electrical Engineering as laboratory work in the department of Physics. This would be offered informally by those departments, if not formally in separate courses. Most of the state universities have Engineering, and this is historic proof of the demand for it as a university department. Many who have finished a high school course demand an opportu-

nity to proceed with their education in engineering courses containing a considerable element of general culture. Accordingly the standard of admission is placed unusually high, and the entering students rank as regular freshmen.

The extra expense to the State for these engineering courses is merely nominal; only one additional professor has been employed, the Professor of Civil Engineering. The Professor of Physics conducts the special work in Electrical Engineering.

This great economy comes from the fact that nearly every collegiate department, without additional expense, contributes to the studies of the engineering courses.

An electrical plant has been established sufficient for immediate needs, and the most important apparatus is in position. The physical laboratory—one of great excellence—furnishes all the general and elementary work. The department of civil engineering is supplied with the most important instruments.

Medical School.

The experiment of conducting part of the medical work in Denver has succeeded beyond expectation. The clinical instruction thus provided has given a new life to the department, and the students number six to one as compared with the former enrollment. The salary received by the professors and lecturers is merely nominal, yet the organization and efficiency of the department merit high commendation.

Law School.

The law school, opened two years ago so auspiciously, maintains its promise and its high standard of work. The law students are among the hardest workers of the University; theirs is a genuine student life, and the privilege of electing college studies in addition to regular law studies adds much to the opportunities of the school. The standard of examination last year was spoken of in terms of high praise. There were twelve graduates in the law class of '94, the first to receive their diplomas. The devoted work of Dean, Secretary, Professors and Lecturers can not be appreciated too highly by the people of Colorado; and there should be no delay in making possible an increase in the funds of the school. A considerable library has been collected, and new rooms in the Hale Building have been assigned to the department.

Preparatory School.

The Preparatory School, as well as the University proper, shows a large growth. The school has been entirely removed from the University campus, and is conducted in a building a few blocks distant. This change has been made for the following reasons: First, there is not room upon the campus for both University and Preparatory students; the history of universities shows that it is not favorable to the growth of either to conduct university and preparatory work under the same roof; and the energy of the University must be directed more and more to the University departments. The co-operation of the City of Boulder has

been secured in supporting the school, on the ground of advantage to the Preparatory pupils resident in the city. At present the District provides room, heat and incidentals for the school, and pays nearly half of the salaries. The classes in chemistry and biology are conducted in the University laboratories.

The Regents believe that an equitable arrangement for the immediate future would be as follows: the school to be conducted as a Preparatory school; the courses and work to be maintained at a satisfactory standard and the University to pay pro rata for the pupils from other districts. The school will be of value to the State for several years to come, because many communities maintain no high-school, and have need of the advantages of the Preparatory School. At present the statutes require the Regents to conduct a Preparatory School; these should be so changed as to leave the matter to the option of the Regents.

The school has grown not only in size but in standard and efficiency. Its great need is more room.

Improvements.

The improvements upon the grounds have been made with much care for expense. We may mention important changes. The sewerage has been centered and conducted off the grounds; a new fence, cheap but neat and substantial, has replaced the old barbed wire fence; the surface stones have been removed from all parts of the campus; the stone walks have been extended, and a small amount of grading has been done.

The Hale Scientific Building has been completed. This structure is of four stories, one hundred by sixty feet in plan. It is built of white and red sandstones and presents a fine architectural appearance. The first story is given entirely to physics and is fitted with all modern conveniences and improvements in the way of tables, cases, tanks, dark rooms, apparatus, etc. The second story is devoted to mathematics and civil engineering. The Law School at present occupies the north end of this floor. The third floor is occupied by the biological lecture rooms, laboratories and cabinets.

The Main Building has been strengthened; important repairs and changes have been made from roof to basement. The plumbing was entirely replaced. The chemical laboratory has been removed from the upper floor to another building, and nearly the entire third story has been given to the library. Several semi-nary rooms are located adjacent to the library rooms. Three rooms on the second floor have been prepared for the art collection donated by Colonel Ivers Phillips.

The old Hospital which was used last year for the Law School has been converted into a chemical laboratory. Every room has been completely fitted for some department of chemical work. This is one of the most important changes that has been made.

A central heating plant has been established which connects with the main buildings. It is proving satisfactory and economical.

The first story of an engineering building has been erected, and an engine and electrical machinery are already in place and in working order. A dynamo and

storage battery with measuring instruments are part of the equipment.

Nearly all the buildings on the campus have undergone important repairs.

Books to the value of one thousand dollars were added to the library during the summer; and the sum of fifteen hundred dollars was expended for apparatus. These sums are a very small part of the amount needed for these purposes.

Needs.

It is safe to say that half a million dollars should be expended upon the University grounds, buildings and equipments as soon as the State is able. The University of Missouri has received from the State since February, 1891, by direct appropriation and in interest on its endowment, \$1,525,000. The equipment of the University should be the next work taken up by Colorado after the completion of the Capitol Building. Kansas completed her University before erecting her Capitol. The Regents are not ignorant of the condition of the State's finances and will keep it in view while urging the immediate wants of the University.

A Library Building should be begun at once; one wing could be erected now and the rest could be completed later. A Gymnasium should be provided as soon as possible. An Observatory is a necessary part of a university equipment. Further repairs and improvement of the grounds are indispensable. The furnishing of some of the buildings is incomplete.

The library should be increased by several thousand volumes; and several thousand dollars should be expended for apparatus.

Finances.

The immediate needs as just enumerated are:

A Library Building,

A Gymnasium,

An Astronomical Observatory,

Improvement of Buildings and Grounds,

Addition of Furniture,

Additions to Library,

Additions to Apparatus.

The proceeds for the next year from the one-fifth mill tax will be about \$40,000. This amount will cover only the pay roll of the University, leaving nothing for other running expenses and for repairs and improvements. In addition to this revenue the \$20,000 lost by cutting off the one-tenth mill tax for 1894-5 should be made good to the University, and the one-tenth mill should again be levied for the Institution; or in some way its equivalent should be given. In addition as large a sum as possible should be set apart for the needs mentioned above.

The one-tenth mill levy would have supplied some of the University's wants, had it not been cut off, and had not the shrinkage in taxes occurred. These reasons were assigned when asking for the extra levy: (1) increased number of students; (2) needs of the library; (3) demands for apparatus; (4) need of additional professors; and (5) the expenses of the law school. The library has received only

about \$1,000; the various laboratories only about \$1,500; only two professors have been added; and the law school receives only \$2,500 per year for all expenses. The larger part of the needs enumerated still remains. Not more than one-eighth of the additional sum expected has it been possible to devote to the above uses.

The special appropriation of \$34,000 for buildings and grounds has been wholly expended or contracted. The items are to be seen in the appendix to this report. The larger sums were used as follows: to repay \$8,500 previously borrowed from the University income for the Hale Building; to complete the Hale building; and to construct a Heating Plant. The balance was used for minor improvements and repairs. The appropriation was not enough to meet pressing needs, since part of the regular income is now being used for indispensable permanent improvements.

It should be sufficient to place the needs of the University before our legislators with the expectation that they will be met cordially, so far as the State's finances will allow. The educational interests of the State should be made secondary to no other consideration.

The usefulness of the University to the people of Colorado is rapidly increasing, and its growth will be limited only by lack of proper financial support.

It requires a little power of imagination to see things in perspective; to discover future success and advantage to be wrought out by present means. Already twenty graduates of one high school are in the various departments of the University and nearly every genuine high school in Colorado has its representatives. The history of other states shows that from 25 to 50 per cent of the high school graduates in Colorado will soon use the advantages of the University. Then every community will have a vital interest in its welfare. It is important that it be so supported as to properly perform its function in the system of public education.

Gifts and Endowments.

It has not been customary to endow state universities by private benefaction. The reasons are too obvious to require mention. We may expect an important change of sentiment in this regard. There are already some notable exceptions to the rule, and recently important assistance has been rendered state universities by private bounty.

There is no way in which educational endowments could be so well employed as in supplementing the work done by the State. Such union of effort would produce magnificent results, and reach the largest number of young men and women.

Endowments and gifts could well be made for any of the following purposes:

Building for the Christian Associations, (This would be in the hands of trustees of the associaton),

New Main Building,

Library Building,

Building for Law School,

Building for Medical school,

Gymnasium,
Astronomical Observatory,
Endowment of Chairs,
Art collections,
Library endowments and contributions,
Apparatus,
Improvement of Grounds.

Relation to the Public Schools and the People.

The University is the capstone of the public school system. Without it the structure of public education would be incomplete and insecure. It offers to the pupils of the common schools the hope of something ahead and inspires to earnest endeavor. It is an incentive to establish high schools and to maintain them at a creditable standard. Already twelve schools have been placed upon the accredited list of the University; an equal number is striving for that recognition; other communities are desirous to begin and maintain high school work.

The work of the University is to fill every profession with men of high training, to contribute to the ranks of practical educators, to increase scientific knowledge, to influence indirectly every industry and occupation, to make intelligent, moral citizens of the highest capacity for usefulness who are in sympathy with the people, to raise the standard of manhood and womanhood and to bring material prosperity and high reputation to the State.

Reports Submitted.

There are submitted herewith the reports of the Secretary of the Board of Regents, the Treasurer of the University and the Librarian; also a list of professors with their salaries and the enrollment of students for the current year.

Respectfully submitted,

JAMES H. BAKER,
President.

THE BOARD OF REGENTS
OF THE STATE UNIVERSITY.
S. A. GIFFIN,
Secretary.

APPENDIX.

Pay Roll of the State University,

(Including all Expenses of Law and Medical Schools.)

JAMES H. BAKER, M. A., LL. D., President, Professor of Ethics..... \$4,500.00

College of Liberal Arts.

J. RAYMOND BRACKETT, PH. D., Dean, Professor of Comparative and English Literature.....	\$2,000.00
MARY RIPPON, Professor of German Language and Literature.....	1,600.00
WILLIAM J. WAGGENER, M. A., Professor of Natural Philosophy. (In Europe on leave of absence.).....	.
CHARLES SKEELE PALMER, PH. D., Professor of Chemistry.....	2,000.00
IRA M. DELONG, M. A., Professor of Mathematics.....	2,000.00
JOHN GARDINER, B. SC., Professor of Biology. (In Europe on leave of absence.).....	—
MAURICE E. DUNHAM, M. A., Professor of Greek.....	2,000.00
CARL W. BELSER, PH. D., Professor of Latin.....	2,000.00
GEORGE H. ROWE, B. S., Professor of Physics (ad interim).....	1,500.00
JAMES H. MCLEAN, PH. D., Professor of History and Political Science....	1,600.00
B. C. BURT, M. A., PH. D., Professor of Philosophy and Pedagogy (ad interim)....	1,600.00
WINFIELD S. NICKERSON, S. D., Professor of Biology and Histology (ad interim)	1,400.00
CHARLES H. FARNSWORTH, Instructor in Music.....	900.00
DELPHINE BELL, Instructor in French	675.00
FREDERICK F. KRAMER, M. A., B. D., Instructor in Oratory.....	225.00
IRVING C. ANDREWS, B. S., Assistant in Chemistry.....	300.00
FRANK Y. MOSELEY, Assistant in Biology.....	500.00
RUSSELL T. MASON, E. M., Secretary	600.00
ALFRED E. WHITAKER, M. A., Librarian	1,000.00

Carried Forward, \$26,400 00

School of Applied Science.

Brought Forward, \$26,400.00

HENRY FULTON, M. S., Acting Dean, Professor of Civil Engineering. . . . 1,600.00

GEORGE H. ROWE, B. S., Professor of Electrical Engineering, (already
listed as Professor of Physics.)The remaining work of the School of Applied Science is done in the
College of Liberal Arts.**School of Medicine.**

Sum set apart by the Regents for total expenses of the Medical School. . . \$ 4,500.00

JEREMIAH T. ESKRIDGE, M. D., DEAN, Professor of Nervous and Mental
Disease and Medical Jurisprudence.HERBERT W. MCLAUTHLIN, M. D., SECRETARY; Professor of Principles
and Practice of Medicine and Clinical Medicine.LUMAN M. GIFFIN, M. D., TREASURER; Professor of Anatomy and Physi-
ology.

CHARLES SKEELE PALMER, PH. D., Professor of Chemistry.

JOHN GARDINER, B. SC., Professor of Histology.

HORACE O. DODGE, M. D., Professor of Physical Diagnosis and Hygiene.

., Professor of Gynecology and Abdomi-
nal Surgery.A. STEWART LOBINGIER, M. D., Professor of Pathology and Clinical Sur-
gery.CLAYTON PARKHILL, M. D., Professor of Principles and Practice of Sur-
gery and Clinical Surgery.

G. MELVILLE BLACK, M. D., Professor of Laryngology and Rhinology.

JOHN CHASE, M. D., Professor of Ophthalmology and Otology.

JOHN W. O'CONNOR, M. D., Professor of Railway and Clinical Surgery.

HERBERT B. WHITNEY, M. D., Professor of the Diseases of Children.

LEWIS E. LEMEN, M. D., Professor of Clinical Surgery.

GEORGE B. PACKARD, M. D., Professor of Orthopedic Surgery.

THOMAS E. TAYLOR, M. D., Professor of Obstetrics.

JOSIAH N. HALL, M. D., Professor of Materia Medica, Therapeutics
and Clinical Medicine.JOHN VROOM, M. D., Lecturer on Bandaging, Minor Surgery and Operat-
ive Surgery on the Cadaver.

H. C. CROUCH, M. D., Lecturer on Bacteriology.

WALTER A. JAYNE, M. D., Lecturer on Gynecology.

SAMUEL D. HOPKINS, M. D., Lecturer on Medical Chemistry and Urinary
Analysis.

A. MANSFIELD HOLMES, M. D., Lecturer on Applied Anatomy.

EMLEY B. QUEAL, M. D., Demonstrator of Anatomy.

EARL H. FISH, M. D., Assistant to the Chair of Surgery.

Carried Forward, \$32,500.00

School of Law.

Brought Forward, \$32,500.00

Sum set apart by the Regents for total expense of the Law School..... \$2,500.00

MOSES HALLETT, LL. D., DEAN; Professor of American Constitutional Law and Federal Jurisprudence.

CHARLES M. CAMPBELL, P. B., B. C. L., SECRETARY; Professor of Law.

OSCAR O. F. A. GREENE, M. A., Professor of Roman Law.

HERBERT B. SHOEMAKER, B. A., LL. B., Professor of Law.

LEWIS S. YOUNG, B. L., Professor of Law.

WILLIAM M. MAGUIRE, Assissant Professor of American Constitutional Law and Federal Jurisprudence.

ALBERT A. REED, LL. B., Instructor in Law.

LECTURERS.

VINCENT D. MARKHAM, B. A., Lecturer on the Law of Contracts.

EBENEZER T. WELLS, Lecturer on the Law of Real Property.

WILLARD TELLER, B. A., Lecturer on Equity Jurisprudence, Pleading and Practice.

HUGH BUTLER, Lecturer on Common Law and Code Pleading and the Peculiarities of Colorado Law and Practice.

VICTOR A. ELLIOTT, Lecturer on the Irrigation Laws of the West.

LUTHER M. GODDARD, LL. B., Lecturer on the Law of Patents, Copy-rights and Trade-marks.

ROBERT S. MORRISON, Lecturer on the Law of Mines and Mining.

JOHN CAMPBELL, M. A., LL. B., Lecturer on the Law of Private and Municipal Corporations.

CHARLES S. THOMAS, LL. B., Lecturer on the Law of Bailments and Evidence.

WILLIAM C. KINGSLEY, Lecturer on the law of Domestic Relations.

HENRY T. ROGERS, M. A., Lecturer on the Law of Wills, Executors and Administrators.

THOMAS WARD, JR., B. A., Lecturer on Criminal Law.

JOHN D. FLEMING, B. A., LL. B., Lecturer on the Law of Insurance.

LUCIUS M. CUTHBERT, M. A., LL. B., Lecturer on the Conflict of Laws.

CALVIN E. REED, B. A., LL. B., Assistant Lecturer on the Law of Real Property.

HENRY C. CHARPIOT, B. S., LL. B., Assistant Lecturer on the Law of Domestic Relations.

ALBERT S. BLAKE, Assistant Lecturer on the Law of Contracts.

HORACE G. LUNT, B. A., Assistant Lecturer on the Law of Private and Municipal Corporations.

WILLIAM H. BRYANT, B. S., LL. B., Assistant Lecturer on the Law of Bailments and Evidence.

Carried Forward, \$35,000.00

Brought Forward, \$35,000.00

- GEORGE Z. DIMMITT, M. A., LL. B , Assistant Lecturer on Criminal Law.
- JOHN H. DENISON, B. A., Assistant Lecturer on Equity Jurisprudence, Pleading and Practice.
- FRANK E.GOVE, B.A., LL. B., Assistant Lecturer on Common Law and Code Pleadings and the Peculiarities of Colorado Law and Practice.

Preparatory School.

WILLIAM L BURDICK, PH. D., Principal, Teacher of History and Greek. (One-half of salary paid by University)	\$900.00
WALTER W. REMINGTON, M. S., Teacher of Science. (One-half of salary paid by University)	600.00
HELEN BEARDSLEY, B. A., Teacher of Latin and German. (One-half of salary paid by University)	400.00
WESLIE W. PUTNAM, B. L., Teacher of Mathematics. (All of salary paid by University)	500.00
ANNA M. DRIGGS, Teacher of Greek. (All of Salary paid by University)	150.00
THYRZA COHEN, Teacher of Drawing. (One-half of salary paid by University)	144.00
CHARLES H. FARNSWORTH, Teacher of Music. (None of salary paid by University)	—
H. A. SEARS, Janitor. (One-half of salary paid by University)	225.00

Other Employees.

J. E. Bemus, in charge of Buildings and Grounds	600.00
George R. Moore, Engineer and Fireman	600.00
Six Janitors, for Main Building, Hale Scientific Building, Woodbury Hall, Medical Building and Chemical Laboratory, and one assistant in Physical Laboratory	792.00

Total, \$ 39,911 00

Treasurer's Report.

From Oct. 1st, 1892, to Oct. 1st, 1894.

RECEIPTS.

Balance cash on hand Oct. 1st. 1892	\$ 4,946.92
Received from State Treasurer, General Fund	79,166.86
“ “ “ “ Land Income	5,234.33
“ “ “ “ Special Fund	12,500.00
“ “ “ “ Special Appropriation Fund	8,500.00
“ “ Shoemaker, Sec'y.	1,579.10
“ “ Moseley “	355.50

\$112,082.69

DISBURSEMENTS.

Disbursements as per Vouchers	\$107,412.77
Cash on hand Oct. 1st, '94.....	4,669.92

 \$112,082.69

Respectfully submitted,

C. G. BUCKINGHAM,

Treasurer.

Secretary's Report.

Statement of the Secretary of the Board of Regents, of the University of Colorado, as to the total amount of the warrants drawn upon the Treasurer of the University, between October 1st, 1892 and October 1st 1894, and for what department and purpose drawn, to-wit:

Salaries of Professors, Instructors, Librarian and Sec'y of President (exclusive of Law and Medical departments)	\$56,569.49
Janitors and their supplies	1,592.75
Buildings and Grounds.....	\$9,444.95
Hale Scientific Building.....	215.00
	<hr/>
Chemical Laboratory.....	666.64
Applied Science	424.02
Regents, salaries and mileage.....	2,074.95
Postage, Printing and stationery	2,969.55
Greek	6.00
Literature and Art	245.16
Biology.....	368.95
Physical Laboratory.....	232.17
Electrical Engineering.....	205.06
Medical salaries and expenses	8,896.01
Periodicals and newspapers.....	762.05
Latin	71.05
French and German.....	12.00
History and Political Economy.....	51.11
Mathematics	13.23
Advertising, visiting and accrediting High Schools and all university work in state	3,088.08
Horses and wagon	391.66
Sundries and small items paid out.....	5,248.37
Library	594.79
Columbian Fair.....	241.55

 Carried Forward, 94,384.59

UNIVERSITY OF COLORADO.

	Brought Forward, \$94,384.59
Fuel, light and oil.....	3,898.60
Furniture and furnishing.....	789.05
Law salaries and expenses.....	3,319.11
	<hr/>
	\$102,391.35

This report does not include the special appropriation of \$34,000.00 made by the last Legislature for improving the Campus. This \$34,000.00 was kept in the State Treasury and the President and Secretary drew warrants directly upon the State Treasurer.

Respectfully submitted,

October 1st, 1894.

S. A. GIFFIN,

Secretary of Board of Regents.

Report on Use of Special Appropriation of \$34,000.

Amount of Appropriation.....	\$34,000.00
Repaid General Fund of the University as provided in the statutes	\$8500.00
Expended on Hale Scientific Building....	8935.76
Expended for Heating Plant.....	7200.00
Expended for building for Heating Plant and for Engineering...	5733.33
Expended on President's house.....	41.00
Expended on Main building and Chemical Laboratory (formerly Medical building)	1762.91
	<hr/>
	\$32173.00
Balance.....	1827.00
	<hr/>
	\$34,000.00

The balance of \$1827.00 is due on final payments on the contracts for the Hale Scientific building and for the Heating Plant.

S. A. GIFFIN,
Secretary.

JAMES H. BAKER,
President.

Librarian's Report.

BOULDER, Colo., Oct. 12th, 1894.

DR. JAMES H. BAKER,
President of the Board of Regents,
University of Colorado.

Dear Sir:—I have the honor to submit herewith the Report of the Librarian, covering the period from Oct. 1st, 1892, to Oct. 1st, 1894.

INVENTORY OF BOOKS.

VOLUMES.	OCT. 1, 1892.	OCT. 1, 1893.	OCT. 1, 1894.	INCREASE.
General Library	6244	6525	6973	729
Public Document library..	1965	2235	2381	416
	<hr/>	<hr/>	<hr/>	<hr/>
	8209	8760	9354	
Total net increase				1145

The necessity of greater space and facilities for the consultation and reading of periodicals and the bound volumes of magazines, which we mentioned in the previous Report, has been amply met in the Library's new quarters on the third floor; the entire west room, spacious and light, being devoted, exclusively, to periodicals, magazines and newspapers.

The list of one hundred (100) periodicals is continued, and the completed volumes have been preserved and bound. No binding was done in the first year covered by this report, but during the past year thirty-seven (37) volumes have been bound and two hundred and fifty (250) more, included in the present report, are in the binder's hands. This will bring our periodical literature well up to date, and increase, by so much, our too meager sources of reference.

Very respectfully yours,

ALFRED E. WHITAKER,
Librarian.

Catalogue of Students.

College of Liberal Arts.

GRADUATE COURSES.

NAME.	HOME RESIDENCE.	COURSE.
Andrews, Curtis Irving, B. S. University of Colorado, 1894.	Boulder	M. S.
Andrews, Susie May, B. A., M. A. University of Colorado. 1893; 1894.	Boulder.	Special.
Beardsley, Helen, B. A. University of Colorado, 1889.	Boulder.	M. A.
Burger, Charles Rowland, Ph. B. University of Colorado, 1892.	Denver	M. S.
Burger, Frederick W., Jr., B. A. University of Colorado, 1894.	Boulder	Special.
Clarke, George, B. A. University of Dublin, ———	Montclair.	Ph. D.
Cook, Charles Hall, B. A. University of Michigan, 1874.	Denver.	Ph. D.
*Heppenheimer, Frederick Charles M. D. Bonn University, Germany, 1880	Boulder.	Ph. D.
Kinder, Francis Shanor, Ph. B. University of Colorado, 1894.	Scenery Hill, Pa.	M. A.
Kramer, Frederick A., M. A., B. D. Trinity College, 1893; Gen'l Theologi- cal Sem. 1891.	Boulder	Ph. D.
Ling, Charles J., B. S. Cornell.	Denver	Ph. D.
Smith, Sidney Fuller U. S. Naval Academy.	Denver	Ph. D.
Taggart, Inez Lorenza, B. A., M. A. University of Kansas, 1890; 1892.	Denver.	Ph. D.

SENIOR CLASS.

NAME.	HOME RESIDENCE.	COLLEGE RESIDENCE.
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Bluhm, Conrad.....	Northfield, Ohio.	— — —
Chase, Louise.....	Boulder.....	South of Boulder.
Davis, Daisy.....	Greeley.....	Room 1, Cottage 1.
Driggs, Anna Millicent.....	Galesburg, Ill.....	Room 5, Cottage 1.
Gaylord, Lewis.....	Grand Junction.....	S. A. E. House.
Layton, Harry Phillip.....	Grand Junction.....	S. A. E. House.
McGinnis, Harry.....	Nederland.....	S. A. E. House.
Moseley, Frank Yandell.....	Boulder.....	Room 10, Woodbury Hall.
Wilder, Florence.....	Denver.....	934 Spruce St.
Ziemer, Myrtle Drinnie.....	Milwaukee, Wis.....	Cor. College Ave and 10th St.

JUNIOR CLASS.

—10

NAME.	HOME RESIDENCE.	COLLEGE RESIDENCE.
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Andrew, Henry Oresta.....	Boulder.....	North 26th St.
Bliss, Ernest Robert.....	Greeley.....	Room 11, Woodbury Hall.
Burger, William Henry.....	Boulder.....	1103 Pearl St.
Bybee, William F.....	Lafayette.....	University Place.
Campbell, Robert Argyll.....	Hanover, N. H.....	1714 Pine St.
Chave, Theodore Tayler.....	Denver.....	Stillman Hotel.
Cohen, Thyrsa.....	Denver.....	Room 9, Cottage 1.
Farnsworth, Charles H.....	Boulder.....	Pine St.
Fuller, May Ridding.....	Boulder.....	1060 Spruce St.
Gamble, Elizabeth.....	Detroit, Mich.....	University Place.
Greenman, Alfred A.....	Boulder.....	2035 15th St.
Miller, Charles H. C.....	Central City.....	S. A. E. House.
Parsons, John Hicks.....	Boulder.....	1625 Pine St.
Wise, Jenne Frances.....	Boulder.....	1938 Walnut St.

SOPHOMORE CLASS.

—14

NAME.	HOME RESIDENCE.	COLLEGE RESIDENCE.
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Bailey, Edna Jeannette.....	Boulder.....	Boulder.
Ballard, Charlotte Emeline.....	Watkins.....	Room 9, Cottage 1.
Brown, Nannie.....	Greeley.....	Room 7, Cottage 1.
Bunyan, John.....	Berthoud.....	Room 8, Woodbury Hall.
Chase, Charles Albert.....	S. E. of Boulder.....	S. E. of Boulder.
Coan, Edith Lancaster.....	Boulder.....	910 Pine St.
Crandall, Merritt Julius.....	Boulder.....	1657 9th St.
Dakan, Albert.....	Castle Rock.....	Room 5, Woodbury Hall.
Easley, Charles H.....	Golden.....	1140 Marine St.
Ellet, Alfred Scarritt.....	Boulder.....	1719 Walnut St.
Fuhrer, Frank.....	Greeley.....	Pearl St.
Gamble, Henry Patrick.....	Detroit, Mich.....	University Place.
Hankins, Lulu.....	Boulder.....	Room 2, Cottage 1.
Haskins, Earl Weldon.....	La Junta.....	S. A. E. House.
Henry, Beulah Genevieve.....	Boulder.....	9 2 Spruce St.
Hocking, Mina.....	Boulder.....	Bet. Pearl St. and Arapahoe Ave.
Hubbard, James Robert.....	Boulder.....	1500 Arapahoe Ave.
Johnson, Arthur C.....	Denver.....	Room 6, Woodbury Hall.
Kendrick, Addie Agatha.....	Boulder.....	1563 5th St.
Kesner, Edgar.....	Fairplay.....	964 Marine St.

Martin, Daniel Rowland	Cincinnati, Iowa	Cor. 12 th and Walnut Sts.
Martin, Mabel	Denver	Room 8, Cottage 1.
Neikirk, Jessie Georgia	Boulder	Portland Place.
Neikirk, Lewis Irving	Boulder	Portland Place.
Parker, Mary Lillian	Georgetown	Room 10, Cottage 2.
Richey, Luzerne A.	Senecaville, Ohio	1140 Marine St.
Rider, William Leslie	South Norwalk, Conn.	1140 Marine St.
Sherman, George Thieman	Pueblo	S. A. E. House.
Shotwell, Sue Graeme	Boulder	1028 Maple Ave.
Squires, Blanche Miranda	Boulder	1019 Spruce St.
Studinski, Charles Heitler	Pueblo	S. A. E. House.
Tague, Edgar Lemuel	Akron	Room 5, Woodbury Hall.
Taussig, Claude Melnotte	Denver	S. A. E. House.
Weymouth, Edith	Central City	Room 8, Cottage 1.

FRESHMAN CLASS.

-34

NAME	HOME RESIDENCE.	COLLEGE RESIDENCE.
Arnett, W. D.	Chicago, Ill.	Boulder
Baldwin, Eliphelet Coomer	Denver	S. A. E. House.
Bertschy, Ray D.	Saguache	Room 7, Woodbury Hall.
Bunyan, William Chalmers	Berthoud	Room 8, Woodbury Hall.
Callahan, James	Florence	Room 7, Woodbury Hall.
Campbell, Eva Viola	Denver	Cor. River and 17th Sts.
Coleman, Lafayette Saterfield	Denver	Boulder.
Haskins, Beulah Pearl	La Junta	Room 7, Cottage 2.
Holstein, Charles	Boulder	1735 Pine St.
Hubbard, Margaret	Boulder	University Addition.
Kettle, Eliza Caroline	Westcliffe	Room 2, Cottage 2.
Kettle, Sarah Isabella	Westcliffe	Room 2, Cottage 2.
Knapp, Maude Lulu	Albany, Wis.	St. Gertrude's Academy.
McClure, Bessie Moseley	Boulder	Cor. 11th and Spruce Sts.
Metzler, Daisy Dawn	Crested Butte	Room 3, Cottage 2
Newman, Edna	Durango	Cor. 13th and Spruce Sts.
Nye, Arthur Maurice	Denver	S. A. E. House.
Ogden, Eugene Hampton	Boulder	1628 Pine St.
Paddock, Carl Hiram	Trinidad	Room 12, Woodbury Hall.
Pritchard, Anna	Greenhorn	Room 3, Cottage 2.
Rooney, Nora	Morrison	1212 Pearl St.
Shaefer, Robert Walter	Deuel	Woodbury Hall.
Shafer, Wilson Marion	Boulder	1027 Pine St.
Smith, Homer Amos Arthur	Snyder	Room 42, Hale Scientific Building.
Southard, Charles Erastus	Greeley	Room 11, Woodbury Hall.
Thompson, John Royal	Longmont	Cor. Arapahoe Ave. and 15th St.
Ward, Louis Elmer	Longmont	1539 9th St.
Waters, Lilian	Grand Junction	Room 9, Cottage 2.
West, Frank Callender	Durango	1418 Walnut St.
Whitaker, Milton Clarence	Durango	Room 7, Woodbury Hall.
Whitmore, May	New York, N. Y.	1514 Pine St.
Williams, Edith	Greeley	Room 8, Cottage 2.
Wise, Elinor	Boulder	1938 Walnut St.

SPECIAL STUDENTS.

-33

NAME.	HOME RESIDENCE.	COLLEGE RESIDENCE.
Baker, T. O.	Durango	Boulder

Boot, Nettie	Boulder.....	2433 6th St.
Downer, Charlotte.....	Boulder.....	
Hankins, Martha.....	Boulder.....	Room 2, Cottage No. 1.
Houghton, Annie Prince.....	Portland, Me.....	Mrs. Perry's, University Place.
Jones, George W., M. D.....	Boulder.....	Cor. 8th and Pine Sts.
Kingsley, Charles M.....	Boulder.....	2126 6th St.
Silliman, Flora Edna.....	Dunlap, Ill.....	Bowen Hotel
Whitmore, Grace.....	New York, N. Y.....	1514 Pine St.

-9

School of Applied Science.

SOPHOMORE CLASS.

NAME.	HOME RESIDENCE.	COLLEGE RESIDENCE.
Whiteside, Frederick William.....	Denver.....	S. A. E. House

FRESHMAN CLASS.

-1

Emerson, George Dana.....	Denver.....	Room 4, Woodbury Hall.
Hardcastle, William Bodwell.....	Denver.....	S. A. E. House.
Hayden, Charles Christopher.....	Walsenburg.....	1732 12th St.
Hogarty, Barry.....	Greeley.....	Room 11, Woodbury Hall.
Stahl, John Henry.....	Denver.....	1732 12th St.
Swain, Louis Bunn	Walsenburg.....	1732 12th St.
Ward, Arlie McCoy	Longmont.....	1532 9th St.
West, Arthur Benjamin.....	Denver.....	S. A. E. House.
Wood, Franklin Porter.....	Boulder.....	2326 13th St.

-9

School of Law.

SENIOR CLASS.

NAME.	HOME RESIDENCE.	COLLEGE RESIDENCE.
Darley, Alexander Ward.. ..	Denver.....	724 Walnut St.
Hamill, James Nesbitt.....	Denver.....	S. A. E. House
Ingram, Edwin John.....	Boulder.....	1827 Walnut St.
Luethi, Francis Samuel.....	Boulder.....	Boulder.
Marsh, Grant M.	Gunnison.....	Boulder.
Regennitter, Erwin Louis.....	Davenport, Iowa.....	S. A. E. House.
Sumner, Charles Marsh	Durango.....	S. A. E. House.
Wales, George Francis.....	Boulder.....	Room 6, Woodbury Hall.

JUNIOR CLASS.

8

NAME.	HOME RESIDENCE.	COLLEGE RESIDENCE.
Carney, Patrick.....	Ouray.....	Room 7, Woodbury Hall.
Condit, James.....	Buena Vista.....	Room 9, Woodbury Hall.
Graham, Royal Reed.....	West Fairfield, Pa	S. A. E. House.
Jacobs, John Theodore.....	Greeley.....	12th St.
Mallory, Thomas Matteson.....	Denver.....	Batchelor's Hall.
Monahan, Patrick W....	Grand Junction	Room 9, Woodbury Hall.

Rooney, Will Clark.....	Denver	Boulder
Wanless, Frederick Randall.....	Denver.....	1914 Arapahoe Ave.
White, Walter Evans.....	Denver.....	S. A. E. House.

—9

School of Medicine.

GRADUATE COURSE.

NAME.	HOME RESIDENCE.	*COLLEGE RESIDENCE.
Frary, Louis Alliston, M. D.....	Denver.....	321 West 14th Ave.
Love, Minnie C. T., M. D.....	Denver.....	1670 Broadway.

SENIOR CLASS.

—2

NAME.	HOME RESIDENCE.	*COLLEGE RESIDENCE.
Bles, Victor A.....	Denver.....	1738 Pearl St.
Clements, Annie.....	Denver.....	1411 Champa St.
Cummings, Benjamin Franklin.....	Denver.....	1709 Stout St.
Delehanty, Edward.....	Denver.....	1420 So. 15th St.
Gardiner, Mary Louise.	Denver.....	1208 So. 10th St.
Gardiner, Matthew Henry.....	Denver.....	1208 So. 10th St.
Jones, John Franklin.....	Denver.....	1616 Arapahoe St.
Loustano, Andrew Jerome.....	Denver.....	1521 Stout St.
MacDonald, William Campbell.....	Denver.....	Highland, Colo.
Moore, William Alexander.....	Elizabeth.....	3021 Lawrence St.
Sigman, Horace Grant.....	Pueblo.....	956 Broadway.

JUNIOR CLASS.

—11

NAME.	HOME RESIDENCE.	*COLLEGE RESIDENCE.
Alger, Charles Joseph.....	Denver.....	1533 Lafayette St.
Chapman, Walter Scott.....	Denver.....	1628 Broadway.
Cline, John Wilbie.....	Hazeltine.....	2330 Washington Ave.
Hayes, Alfred Irwin.....	Denver.....	1125 23d St.
Herrick, Seldon Foster.....	Denver.....	146 West Ellsworth St.
Kaverry, Mary.....	Denver.....	14th and Arapahoe Sts.
Lake, Mary Alice.....	Denver.....	1627 Lincoln Ave.
Medill, David W.....	Denver.....	16th and Stout Sts.
Pullman, John Douglass.....	Denver.....	146 West Ellsworth St.
Roberts, Leonidas Bane.....	Colorado Springs.....	1717 Stout St.
Robinson, Martin Arthur.....	Lake City.....	1717 Stout St.
Wigglesworth, Albert Matthew.....	Durango.....	704 21st St.

FRESHMAN CLASS.

—12

NAME.	HOME RESIDENCE	COLLEGE RESIDENCE.
Bird, Mary.....	San Jose, Cal.....	Room 12, Cottage 2.
Connacher, Sara S.....	Hampton, Va.....	Room 12, Cottage 2.
Davis, Orlando Morton.....	Gorham, Me,	
Edmiston, Matthew Arnold.....	Littleton.....	1515 9th St.
Fullerton, Robert E.....	New Castle.....	1518 Walnut St.
Guthrie, Alice.....	Denver.....	Cor. 14th and Walnut Sts.
Jones, John Anderson.....	Las Animas.....	1302 17th St.
Maxwell, James Graham.....	Castle Rock.....	1723 12th St.
McGill, Earl Duane.....	Morrison.....	1515 9th St.

*Denver.

O'Brien, George Gilbert.....	Boulder.....	Boulder.
Roberts, May.....	Colorado Springs.....	Room 11 Cottage 2.
Rumsey, Frank William.....	Goshen, N. Y.....	1515 9th St.
Sheldon, Daniel W.....	Boulder.....	1817 Arapahoe Ave.
Weaver, Charles David.....	Longmont.....	1645 12th St.
Weaver, John Andrew.....	Longmont.....	1645 12th St.
Wilcox, Henry William.....	Denver.....	12th St.

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State Preparatory School.

FOURTH YEAR.

NAME.	SCHOOL RESIDENCE.
Anderson, Josephine...	Arapahoe and 26th St.
Andrews, Frances Ruth.....	1903 Walnut St.
Brown, Garry Estep.....	1107 Bluff St.
Burnham, Joseph Lloyd.....	2103 Grove St.
Calvert, Edna Lee.....	University Addition.
Chase, Harry Albert.....	1201 Hill St.
Embree, Wesley Moreland.....	Hill St.
Grayson, Carrie Belle.....	420 Pearl St.
Hahn, Mabel Josephine.....	Arapahoe and 15th St.
Morrison, Richard Charles.....	1603 Walnut St.
Niles, Clara Elizabeth.....	Cor. 40th Parallel and 17th St.
Ogden, William Brayton.....	1914 Arapahoe Ave.
Perry, Fred Lewis.....	1105 11th St.
Pickle, Hayden Lowrey.....	2019 Grove St.
Rule, William Lloyd.....	Newland Addition.
Shute, Pearl Amanda.....	Hill and 15th Sts.
Stanton, Mary Jessie.....	East Pine St.
Temple, Elmer Smith.....	Pine and 15th Sts.
Van Fleet, Edwin Wilson.....	1092 Spruce St.
Volf, Winifred Mary.....	Spruce and 18th Sts.

THIRD YEAR.

—20

NAME.	SCHOOL RESIDENCE.
Campbell, Gertrude Jane.....	1702 Pine St.
Chipman, Reeve.....	556 University St.
Collie, Joseph Edward.....	1107 Bluff St.
Cullacott, Bertha Louise.....	538 Arapahoe Ave.
Grandall, Roy Eugene.....	1657 9th St.
Gutler, James Elbert.....	438 Pearl St.
Hennett, Guy Russel.....	Mapleton Heights.
Hanford, Mary Agnes.....	1526 Spruce St.
Hodge, Horace Colburn.....	1605 Pine St.
Higgleston, Ada Myrtle.....	Marine and 18th Sts.
Hulton, Henry, Jr.....	2127 16th St.
Howler, John Clare.....	2029 Walnut St.
Howler, May Pearl.....	2029 Walnut St.
Hrey, Emma.....	826 Pearl St.
Hiffin, Frank Albee.....	Mapleton Heights.

Hammond, Edward Mackubin	556 University St.
Hixor, Howard H.	Arapahoe and 18th St.
Hixon, T. E.	Arapahoe and 18th St.
Harmon, Hattie Potter	508 Pearl St.
Jellison, Laura Mabel	704 Spruce St.
King, Herbert Dean	University Place
Lockwood, Fred William	517 Pine St.
McIntire, Joseph Phillips	1538 Arapahoe Ave.
Miller, James Pierson	Walnut between 13th and 14th.
Montgomery, Mabel	1802 Water St.
Pettengill, Bertha Elizabeth	803 Spruce St.
Quick, Richard James	1116 Pine St.
Ralli, Edith	1326 9th St.
Rosier, Charles	1719 Marine St.
Roth, Frederick Eugene	1902 Walnut St.
Ruffenach, Rosa	601 Spruce St.
Salsbury, John Allen	627 Spruce St.
Sholes, Julia Anna	2011 Pine St.
Smith, Bertie E.	S. E. University Addition.
Stewart, Walter McCutcheon	835 Pine St.
Thornton, Emma Jane	1607 9th St.
Tourtellot, Aimee	Mapleton and 18th St.
Tyler Lu Clinton	Boulder.
Wells, Leta Bell	1505 9th St.
Wolcott, Frank Howard	905 Marine St.
Wood, Daisie Huntington	2326 13th St.
Wood, Minnie	Court House.
Woollett, Francis Ives	724 Arapahoe Ave.

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SECOND YEAR.

NAME.	SCHOOL RESIDENCE.
Austin, Claribel Harriett	1727 Pine
Autrey, Bernice Edith	East Boulder
Bell, Rosetta Gordon	1931 Mapleton.
Blore, Wm. H.	1613 Pearl St.
Callahan, Ella	2138 Walnut
Conley, Marion Catherine	1327 Walnut.
Crandall, Daisy Elizabeth	1651 9th St.
Danford, Jessie Maria	1526 Spruce St.
DeLong, Edith	University and 12th Sts.
Ellet, Laura	Bluff between 11th and 12th Sts.
Foote, Bessie Minerva	905 Marine.
Foote, Ethel Wilhelmina	905 Marine.
Hammer, Julia	602 Spruce St.
Henry, Luella	538 Arapahoe Ave.
Hocking, Elmer Vincent	East Boulder
Holly, Charles Alonzo	Railroad and 17th Sts.
Johnson, Adelia Elizabeth	538 Arapahoe Ave.
Keeler, Mabel Clare	1035 Hill St.
King, Dora Ann	738 Pearl St.
Martin, Harold	Boulder Co.
McClure, George A.	1123 Spruce St.
Mosher, George Warren	1610 Pine St.

Nichols, Guy Clifford.....	East Pearl St.
Parsons, Mattie Adelaide.....	1823 Hill St.
Ricketts, Blanche Ethelyn.....	713 Marine St.
Ricketts, Elizabeth Leota.....	713 Marine St.
Rust, Caroline.....	Arapahoe between 20th and 21st.
Savory, Ada.....	1714 Pine St.
Sheldon, Harrison W.....	1817 Arapahoe Ave.
Smith, Eva Venetia.....	13th between Hill and Bluff.
Sternberg, Grace Revina.....	East Arapahoe Ave.
Sternberg, Irene.....	East Arapahoe Ave.
Stryker, George Washington.....	536 Walnut St.
Sutherland, Rachel Josephine.....	East Pearl St.
Thompson, Bertha Margaret.....	802 Walnut St.
Thompson, Donald.....	725 Spruce St.
Trimble, Elva Carrie.....	704 Spruce St.
Waite, Fred Morrison.....	Arapahoe and 15th St.
White, Fred Lewis.....	1219 Spruce St.
Whitney, Leon.....	611 Marine St.

FIRST YEAR.

—40

NAME.	SCHOOL RESIDENCE.
Adams, Ethelbert B.....	S. E. University Addition
Anderson, Emma Catherine.....	Arapahoe and 27th St.
Andrew, Ida May.....	North 26th St.
Austin, Evan Gilbert.....	Pine and 16th St.
Baker, Nettie.....	419 Walnut St.
Bell, William.....	1931 Hill St.
Bellman, George.....	1221 Pine St.
Booth, Frank Lamare.....	Goss between 20th and 21st.
Bush, Mary Helen.....	1802 Walnut St.
Campbell, Coline Monica.....	1913 Pearl St.
Carbaugh, Maude May.....	1215 Pearl St.
Cheney, Charles Homer.....	Bluff and 12th St.
Clarke, Elbra Paul.....	North Boulder
Collins, Mary.....	2127 Walnut St.
Dahlstrom, Hilma Charlotte.....	615 Spruce St.
Davis, Ilma Mabel.....	South 24th St.
Dunn, Alice.....	1316 Pearl St.
Durward, Florence May.....	Walnut between 19th and 20th.
Evans, Emma Gertrude.....	Arapahoe and 15th St.
Faivre, Lula.....	Pearl between 14th and 15th.
Feeny, Clara Blanche.....	2228 12th St.
Fisher, Dan.....	Pearl St.
Fitzgerald, John.....	West Spruce St.
Garbarino, Lucinda Marie.....	1812 Water St.
Giffin, Horace Leon.....	1244 Pine St.
Glaue, Daisy Arnetta.....	Wolff's Addition.
Hall, William Henry.....	East Boulder
Hankins, Elton Ellsworth.....	Cottage No. 1.
Harmon, Edward Everett.....	508 Pearl St.
Hayward, Maud Anna.....	South 24th St.
Henderson, Samuel Edward.....	2511 Hill St.
Heppenheimer, Fred.....	1427 Spruce St.

Hixon, Alice	.....	Arapahoe and 18th St.
Holmes, Emma Hubble	.....	Arapahoe and 15th St.
Hubbard, John Charles	.....	1515 Marine St.
Huffman, Della	.....	East Arapahoe St.
Johnson, Catherine	.....	935 Pearl St.
Jones, May Ellen	.....	Bluff between 11th and 12th
Kesner, Rebecca Sophia	.....	964 Marine St.
Koehler, Hermine	.....	941 Pearl St.
Laesch, Walter Philip	.....	Mapleton Heights.
Law, Alfred Howard	.....	1621 9th St.
Linkletter, William Alexander	.....	Northeast Boulder.
Lockwood, John Spalding	.....	517 Pine St.
Malden, Elmo	.....	1610 Railroad St.
Mallinckrodt, Philip Herman	.....	1750 9th St.
McIntosh, Josephine	.....	North 12th St.
Montgomery, Josephine Edith	.....	Spruce, between 9th and 10th.
Nelson, Hulda Sophia	.....	Walnut and 18th Sts.
Nelson, Ida Catherine	.....	South Boulder, between 23d and 24th
Nelson, Lewen Russel	.....	438 Pearl St.
Nelson, Mary Ethel	.....	438 Pearl St.
Nay, Samuel Wesley	.....	1524 5th St.
Neikirk, Thomas	.....	Portland Place.
Parks, Ida Lulu	.....	1612 Spruce St.
Pate, Edgar Thomas Alexander	.....	S. E. University Addition.
Patterson, Robert Milton	.....	2224 13th St.
Peterson, Henry	.....	East of University.
Peterson, Minnie Clara	.....	East of University.
Royer, Floyd E.	.....	Between 12th and 13th, Pine St.
Ruffenach, Mary	.....	601 Spruce St.
Saggau, Bertha Mary	.....	901 Pearl St.
Seeley, Effie	.....	1117 Pine St.
Shafer, Alla	.....	1404 Pearl St.
Snarr, Mina	.....	1618 12th St.
Snyder, Maud Anna	.....	552 Arapahoe St.
Stevens, Ruth Ella	.....	1805 Marine St.
Taylor, Roy Fred	.....	627 Spruce St.
Tevis, Lora Bell	.....	1530 Walnut St.
Torrey, Anna Caroline	.....	1840 Grove St.
Tourtellot, Jo	.....	2245 Hill St.
Upton, Gertrude Eliza	.....	Pearl, between 14th and 15th.
Van Fleet, Nora	.....	1002 Spruce St.
Volk, Allen	.....	12th between Hill and Pine.
Ward, George	.....	1532 9th St.
Wellman, May Louise	.....	1828 Pine St.
Wolf, Edith Alice	.....	North 12th St.
Wolf Ernest Laverne	.....	1820 Hill St.
Wood, Mary Ella	.....	2326 13th St.

Summary.

GRADUATE STUDENTS.....	13
COLLEGE OF LIBERAL ARTS—	
Seniors.....	10
Juniors.....	14
Sophomores.....	34
Freshmen.....	33
Special Students.....	9
	100
SCHOOL OF APPLIED SCIENCE.....	10
SCHOOL OF LAW.....	17
SCHOOL OF MEDICINE.....	41
	181
STATE PREPARATORY SCHOOL.....	182
	363
TOTAL.....	

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1894-96



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TENTH

BIENNIAL REPORT

OF THE

REGENTS

UNIVER

COL

Boulder, October 1, 1896.

University of Colorado,

BOULDER.

To the State Superintendent of Public Instruction, Colorado:

The Tenth Biennial Report, 1894-1896, of the State University is herewith presented by the Regents.

Departments of the University.

COLLEGE OF LIBERAL ARTS.

CLASSICAL COURSE, leading to the degree of B.A.

PHILOSOPHICAL COURSE, leading to the degree of Ph.B.

SCIENTIFIC COURSE, leading to the degree of B.S.

LITERARY COURSE, leading to the degree of B.L.

M.A., M.S., and Ph.D.

ENGINEERING, leading to the degree of B.S. (C.E.).

ENGINEERING, leading to the degree of B.S.

University.

Students in attendance during the

	<i>Univ. Students.</i>	<i>Prep. Students.</i>	<i>Total.</i>
1891-2.	66	103	169
1892-3.	129	158	287
1893-4.	159	146	305
1894-5.	204	192	396
1895-6.	267	242	509
1896-7.	(estimated.)		600

The Register of the Graduates now shows the following figures:

College of Liberal Arts	84
Graduate Courses	10
Medical School	56
Law School	25
Honorary Degrees	8
Preparatory School	199
	<hr/> 382

In the graduating classes of the University departments about sixty students are enrolled; in the graduating class of the Preparatory School about thirty: total ninety.

Standards.

Although the growth in number of students has been remarkably rapid, the standards and efficiency of the various departments at the same time have been constantly improved. That the character of the work done in the University of Colorado is widely recognized appears in many ways, but in none more notably than in an editorial recently published in *Minerva*, the German year-book of the educational world. This ranks the University of Colorado amongst the first eleven American universities and the first five State universities. This estimate is based upon faculties, facilities, standards, and character of graduate work. The temptation, especially in our western universities, is great to seek numbers at a sacrifice of just requirements; but we believe that substantial growth must be based upon superior advantages and work.

Graduate Courses.

Since the last report, the Graduate work has been further organized and the requirements have been strengthened. In 1895, for the first time, the degree of Doctor of Philosophy was granted by the University. The candidates were subjected to public examination and defense of thesis. The degree was conferred upon Frederick F. Kramer, M.A., B.D., and George Clarke, B.A. Dr. Kramer's thesis, "The Sources of Gnosticism," is a learned research in a department of philosophy and religion of interest to scholars and theologians. Dr. Clarke's thesis, "The Education of Children at Rome," is based upon an unusually thorough and extensive reading of Latin authors. The volume has been published by Macmillan & Co. Favorable comments upon these theses have been received from various quarters, and it is safe to say that they compare well with the average of those presented by older universities in America and Germany.

These proofs of the successful organization of our graduate work mark an epoch in the development of the University. Twenty graduate students were enrolled last year and the number will increase as facilities are supplied by the State for proper expansion of the work. The Graduate School is the proper criterion of a university, and it should be fostered in our State University by ample provisions for instruction, apparatus and departmental libraries.

College of Liberal Arts.

In 1895, James E. Russell, Ph.D., Leipzig, was appointed to the Chair of Philosophy and Pedagogy. The work of the Department of Pedagogy has developed until now it is an important feature of the college curriculum. The professor in the department regularly visits many of the high schools, normal institutes and educational meetings. Last year many correspondence students in the State pursued the history and philosophy of education under his guidance.

The Department of English, as distinct from that of Literature, has been thoroughly organized. Mr. L. J. Campbell, M.A., Dartmouth, has been appointed regular Instructor in English. In addition Mr. F. P. Cleaves, M.A., a graduate of Dartmouth and of the Emerson College of Oratory, gives instruction in Expression.

Each year the University expends in the College and the School of Applied Science about \$6,000 for books and apparatus. The library now contains, exclusive of pamphlets, more than 13,000 volumes. The selections have always been made with great care, and very little worthless material can be found on the shelves. The demand for suitable room increases every year; a library building is now one of the most important needs of the University.

All departments of the college are conducted by professors who have had special training in their subjects and are thoroughly acquainted with advanced thought and methods. The various scientific departments are known for their equipment and excellence.

The work of the professors is not limited to their formal duties at the University. They visit institutes, educational meetings and high schools, and by lectures and other means, contribute to these interests. Many are authors or translators of scientific and other works and contributors to leading periodicals.

The steady growth of the collegiate department is in every way gratifying. This year, in the college proper, sixty freshmen are enrolled, a significant fact in the history of higher education in Colorado.

School of Applied Science.

The School of Applied Science has already shown the wisdom of the act establishing it. Some thirty students are in attendance and this year the first degrees will be conferred. The standard for admission remains the same as for admission to the Scientific Course in the College.

Many additions have been made to the equipment of the Department of Civil Engineering. The list includes transits, levels, sextants, barometers, current meters, current testing machine and many minor instruments. In the Department of Electrical Engineering several new dynamos of different types, necessary for the complete study of dynamo-electric machinery and the instruments required for testing them have been added. The list of accurate electrical measuring instruments has been largely increased. Wood turning lathes, iron lathes and the necessary tools for wood and iron working have been provided.

The advantages of these engineering courses consist in the admission standard, the strength of the curricula, the element of culture introduced into them, the practical equipment of instruments and machinery, and in the contact of the students with university life. The School should be provided with needed improvements, and the Engineering Building should at once be completed on the plan originally presented.

Medical School.

DEPARTMENT OF MEDICINE. DEPARTMENT OF DENTISTRY.

In 1895 the Medical School entered upon a four-year course. The standard of admission is that required by the Association of American Medical Colleges, although students are advised to complete at least a high-school education before beginning the study of medicine. Several new professors, eminent in their calling, have been added to the faculty. In scientific laboratory work the School has always been one of the strongest. The foundation science is taken with the college classes, and in addition the Medical School has its own laboratories for special subjects. This year much new apparatus has been provided, and special instructors are employed for laboratory work in Physiology, Pathology and Bacteriology.

Considering the standard of admission, the length of course, the scientific foundation both general and special, the size and strength of the Faculty, the clinical advantages and the thorough organization, the school is entitled to rank among the few progressive scientific medical schools. Since making use of the clinical advan-

UNIVERSITY OF COLORADO.

tages in Denver for the advanced classes, the growth of the school in numbers and excellence is sufficient proof of the necessity of conducting part of the medical work in a large town, and sufficient justification of the action of the Regents in authorizing the plan.

A Dental Department of the Colorado School of Medicine was opened September, 1896, with a strong faculty and good equipment. The requirements for admission, the length of course and the standards are those prescribed by the National Association of Dental College Faculties. By this conformity with its rules the School will receive full recognition by the National Association. The School has all the advantages of the University and medical laboratories which are possessed by the medical students, and it offers on the practical side the best skill and most advanced methods. It may be added that the regular appropriation for the Medical School is not increased because of this department.

Law School.

The Law School has fully shared in the general prosperity of the University. Mr. William L. Murfree and Mr. Albert A. Reed have been employed as resident professors. Mr. Murfree's large experience in law practice and his well-earned reputation as author and editor in the field of jurisprudence fit him eminently for his position. The Dean and the Secretary devote more time than ever to actual instruction, and the large corps of professors and lecturers, at stated times during the year, respond to the claims of the School. The standard of instruction and examination has advanced, the requirements for admission have been raised, and soon a three-year course is likely to be established. The library is increased this year by the expenditure of \$500.00 for reference books. A most encouraging sign is the fact that many have this year entered the College of Liberal Arts to elect studies preparatory to the course in law. The final examination questions have been published each year, and distributed widely to members of the legal profession. As measured by this important test many favorable opinions concerning the character of the work have been received.

Preparatory School.

In 1895, Henry White Callahan, Ph.D., formerly Principal of Kingston Academy, N. Y., was appointed Principal of the State Preparatory School. The present organization and efficiency of the School are worthy of much commendation. The number of instructors has been increased and the School has been placed upon the basis of the most successful preparatory schools.

One year ago the New Building, erected by the City of Boulder, was occupied for the first time. Pending its completion the Preparatory School was accommodated for two months in the Hale Scientific Building. The Preparatory Building is well planned and it has been thoroughly equipped with physical, chemical and biological laboratories.

For the years 1895-1897 the University pays one-third of all expenses, the City of Boulder pays the remainder. The School is conducted strictly as a preparatory school, and the courses of study are organized as preparatory courses. The School remains upon the same basis as when conducted in the University Buildings, except that the School District, as stated above, shares the expense.

This year the number of students from every section of Colorado has largely increased, and the School has become of great importance to remote and small districts. It never before was so truly a preparatory school for the State at large.

In May, 1896, Neil D. McKenzie, a citizen of Boulder, presented \$1,000.00 to the Preparatory School to be used for the Library.

Colorado School of Music.

The Colorado School of Music is not a department of the State University, although it was organized for the purpose of advancing musical culture in the University and in the State. The School is under the auspices of an organization called "The Society for the Advancement of Music," and is conducted by a Board of Trustees chosen from the Society. The University Instructor in Music is the Musical Director of the School.

The School was opened September, 1895. The report of the Director for the first year shows an enrollment of thirty-three pupils. Five Denver teachers, besides the local instructors, are connected with the School. The establishment of this School in Boulder is in many ways an advantage to the University. The University incurs no expense in connection with the School of Music.

Buildings and Grounds. Dedication.

New improvements upon the campus include stone walks, additional shade trees, a four-inch water main, a heating system in the Chemistry Building, and a wing of the Engineering Building. The necessary repairs upon the various buildings have been somewhat extensive.

The new wing of the Engineering Building was constructed in 1895, at a contract price of \$2,100. This space is used temporarily for a gymnasium.

In April, 1894, the Hale Scientific Building was formally dedicated with appropriate exercises. Several State officers and a large representation from the General Assembly were present and formed a prominent feature in the success of the occasion.

Needs.

With the rapid increase in students and the progressive spirit of the University, old needs become imperative and new and pressing ones appear. Every year the necessity of a Library Building becomes more prominent. The space at present occupied by the Library is neither ample nor convenient. In three of the buildings more room is needed to supply urgent demands: the Chemical Laboratory, the Medical Building and the Engineering Building. This last should be completed according to the original plan. A separate building for the gymnasium should be provided in order to relieve the wants of the Engineering School. The question of providing a new Main Building demands serious consideration, both on account of the general condition of the present structure and on account of the need of an adequate auditorium. More facilities in the way of books, apparatus and instruction are indispensable. Some of the professors are now teaching double the time usually required of college instructors.

To sum up, there is need of:

Library Building,

Completion of Engineering Building,

Addition to Chemical Building,

Addition to Medical Building,

Gymnasium,

New Main Building,

Additions to Library,

Additions to Apparatus,

Additions to Instruction,

Improvement of Grounds, including removal of stable and wood yard.

All of these matters should receive the careful investigation and generous consideration of the General Assembly.

During the present Biennial period, by careful use of funds, the University has barely kept within the limits of its appropriation. Two years ago the General Assembly, in addition to the one-fifth mill tax, made a special appropriation of \$40,000, \$20,000 per year, for current expenses. A larger sum for the next period is absolutely necessary. The number of students is fifty per cent. greater, and there are corresponding demands for increased equipment and instruction. The above statement refers to running expenses only and covers no part of the needed appropriation for buildings.

In the last report reference was made to the possibilities of private benefactions. In previous years the University has already received donations, as follows:

M. G. Smith, 25.49 acres of land at \$20.00 per acre	\$ 509.80
G. A. Andrews, 21.98 acres of land at \$20.00 per acre	439.60
A. Arnett, 3.83 acres of land at \$20.00 per acre	76.60
Citizens of Boulder	16,656.66
City of Boulder	600.00
C. G. Buckingham, Buckingham Library	2,500.00
Miscellaneous donations to library, including complete set of the celebrated Challenger Reports through Prof. Gardiner	1,500.00
Sarah J. Fearing, M.D., sixty volumes to Medical Library ..	125.00
Mr. and Mrs. Ivers Phillips, through Dr. Dennett, Phillips Art Collection	1,500.00
J. Alden Smith, Geological Collection	\$ 1,000.00
Citizens of Boulder and Denver, through Dr. Palmer, for mineralogical collection	600.00
Miscellaneous small collections of plants, rocks, minerals, etc.	500.00
Wilson A. Farnsworth, D.D., collection of Greek coins	200.00
Albert L. Bennett, rare Chinese coins	150.00
Electrical instruments	100.00
Clayton Parkhill, M.D., three wax models to Medical Department	100.00
Through Wm. Stoddard, two gas machines and placing same	650.00
Total	\$27,207.66

We may expect that in time the University will receive many and large benefactions from loyal and interested citizens of the State. As set forth in a previous report, endowments and gifts could well be made for any of the following purposes:

- Building for Christian Associations,
- New University Building,
- Library Building,
- Building for Law School,
- Building for Medical School,
- Gymnasium,
- Astronomical Observatory,
- Endowment of Chairs,
- Art Collections,
- Library,
- Apparatus,
- Improvement of Grounds.

The State provides, as far as may be, for the endowment and support of the University. Were this income supplemented by private benefactions, the University would soon become one of the greatest centers of learning in America, a pride and a benefit to Colorado and of the highest service to the youth of the State. In no way could benevolent contributions for education be made to bring more ample and useful returns.

Relation to the State.

It is safe to assume that the University is rapidly growing in usefulness and in the confidence of the people. The press of the State is practically unanimous in its support. Yearly new towns are sending students to its various departments. The high schools are increasing in numbers and efficiency and are forming more intimate relations with the University. From many quarters the information is received that the University is becoming widely and favorably known in the country at large.

Near the close of each year the graduating classes of the high schools are invited to spend a day at the University,—this is known as "High School Day." On the last occasion nearly 300 representatives were present.

Members of the College Faculty are ready to respond to calls for lectures at the various educational meetings, and every high school in the State is visited annually. Knowledge of the opportunities presented at the University for higher and professional education is carried to the people in every section of Colorado.

In Michigan three or four religious denominations are centering their educational interests at the State University, and similar attempts are being made in at least seven other states. This plan of co-operation implies no expense to the University and no organic relationship with the associated interests. The denominations, upon their own ground in the vicinity of the University, may maintain dormitories, halls, professorships or theological schools. Thus, while using the regular courses of the University, each denomination according to its own view supplements the work provided by the State and secures for its people at a minimum expense all that could be gained by maintaining a separate college. This is to be done without giving any citizen occasion to make a charge of interference or unwelcome influence. The University is for all the people of the State, as the elementary and high schools are for all the people of a given town; all join in its support, and all should feel free to enjoy its advantages. Last Spring the entire clergy of Boulder passed a resolution commending a broader interest in the problem of higher

education by the State. At the same time the University published a pamphlet containing views from many sources regarding the functions of state universities and the advantages of denominational co-operation. Several thousand copies were distributed throughout Colorado. It is known that at least two religious denominations are already considering the subject of friendly association with the State University. This plan is in the highest degree economical; it combines unity of effort with variety of independent view; it makes the general good and the special interest mutually helpful. It is the plan of business common sense and of wise insight into the problems of our advancing civilization. In this connection the following statement from Professor Richard T. Ely will be of interest: "The state alone can gather together in a common effort all citizens. The state university belongs to all, whether they are Baptists, Presbyterians, Methodists, or Roman Catholics. It says to all citizens, 'This is equally your affair. Let us all join together and build up a great institution of learning which will be the glory of the commonwealth.' It is something, truly a very great thing, to unite all the forces of the State, regardless of party and sect, in a common effort of this sort. No private foundation can have such a beneficent influence. Those commonwealths not enjoying the advantages of a state university do not appreciate what they are losing for the future."

Reports Submitted.

We submit herewith the Pay Roll of the University, Treasurer's Report, Report of the University Secretary, Report of Treasurer of Medical School, Secretary's Report, Report of the Librarian, and an Inventory of Property.

Respectfully submitted,

THE BOARD OF REGENTS OF THE
UNIVERSITY OF COLORADO,

JAMES H. BAKER, President.
S. A. GIFFIN, Secretary.

APPENDIX.

PAY ROLL OF THE STATE UNIVERSITY.

(Including Fixed Appropriations for the Law and Medical Schools.)

James H. Baker, M.A., LL.D., President, Professor of Ethics, \$ 4,500.00

College of Liberal Arts.

J. Raymond Brackett, Ph.D., Dean, Professor of Comparative and English Literature	\$ 2,000.00
Mary Rippon, Professor of the German Language and Literature	1,600.00
William J. Waggener, M.A., Professor of Natural Philosophy	2,000.00
Charles Skeele Palmer, Ph.D., Professor of Chemistry	2,000.00
Ira M. DeLong, M.A., Professor of Mathematics	2,000.00
John Gardiner, B.Sc., Professor of Biology	2,000.00
Maurice E. Dunham, M.A., Professor of Greek	2,000.00
Carl W. Belser, Ph.D., Professor of Latin	2,000.00
James A. MacLean, Ph.D., Professor of History and Political Science	1,800.00
James E. Russell, Ph.D., Professor of Philosophy and Pedagogy	2,000.00
Charles H. Farnsworth, Instructor in Music	900.00
Delphine Bell, Instructor in French	810.00
Frederick F. Kramer, Ph.D., Instructor in Semitic Languages	90.00
Frank Y. Moseley, B.S., Instructor in Biology	500.00
Louis J. Campbell, M.A., Instructor in English	800.00
F. P. Cleaves, M.A., Instructor in Oratory	180.00
Alwyn C. Smith, Assistant in Mathematics	50.00
Wm. H. Burger, Assistant in German	135.00
Carl H. Paddock, Assistant in Spanish	200.00
M. C. Whitaker, Assistant in Chemistry	300.00
Alfred E. Whitaker, M.A., Librarian	1,200.00
Bernice Lochhead, Secretary	600.00

School of Applied Science.

Henry Fulton, M.S., Dean, Professor of Civil Engineering	\$ 1,800.00
Geo. H. Rowe, B.S., Professor of Electrical Engineering ..	1,700.00
David J. Holmes, Assistant in Drawing	100.00

Carried Forward, \$ 33,265.00

Brought Forward, \$ 33,265.00

George R. Moore, Assistant in Shops (salary noted elsewhere).

The remaining work of the School of Applied Science is done by professors in the College of Liberal Arts.

School of Medicine.

DEPARTMENT OF MEDICINE.

Appropriation for expenses of Medical School, including salaries -----	\$ 4,500.00
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FACULTY.

Clayton Parkhill, M.D., Dean, Professor of Principles and Practice of Surgery and Clinical Surgery.

Herbert W. McLauthlin, M.D., Professor of Principles and Practice of Medicine and Clinical Medicine.

Luman M. Giffin, M.D., Treasurer, Professor of Anatomy and Physiology.

Charles Skeele Palmer, Ph.D., Professor of Chemistry.

John Gardiner, B.Sc., Professor of Histology.

A. Stewart Lobingier, M.D., Professor of Surgery.

G. Melville Black, M.D., Professor of Laryngology and Rhinology.

John Chase, M.D., Professor of Ophthalmology and Otology.

John W. O'Connor, M.D., Professor of Railway and Clinical Surgery.

Herbert B. Whitney, M.D., Professor of Physical Diagnosis and the Diseases of Children.

Lewis E. Lemen, M.D., Professor of Clinical Surgery.

George B. Packard, M.D., Professor of Orthopedic Surgery.

Thomas E. Taylor, M.D., Professor of Obstetrics.

Josiah N. Hall, M.D., Professor of Materia Medica, Therapeutics and Clinical Medicine.

Walter A. Jayne, M.D., Professor of Gynecology and Abdominal Surgery.

Joseph B. Kinley, M.D., Professor of Comparative Materia Medica and Therapeutics.

Howell T. Pershing, M.D., Professor of Nervous and Mental Diseases and Medical Jurisprudence.

William B. Craig, M.D., Professor of Abdominal Surgery and Clinical Gynecology.

Carried Forward, \$ 37,765.00

Brought Forward, \$ 37,765.00

Sherman G. Bonney, M.D., Professor of Diseases of the Chest.

Charles A. Powers, M.D., Professor of Surgery.

Henry C. Crouch, M.D., Professor of Bacteriology and Hygiene.

James M. Blaine, M.D., Professor of Dermatology and Pathology.

LECTURERS AND ASSISTANTS.

Samuel D. Hopkins, M.D., Medical Chemistry, Toxicology and Urinary Analysis; Instructor in Neurology.

Cass E. Herrington, LL.B., Medical Jurisprudence.

Emley B. Queal, M.D., Demonstrator of Anatomy.

Mark H. Shears, M.D., Lecturer on Anatomy.

Earl H. Fish, M.D., Bandaging and Minor Surgery; Assistant to the Chair of Surgery.

Clinton G. Hickey, M.D., Assistant to the Chair of Medicine.

A. D. McArthur, M.D., Assistant to the Chair of Materia Medica and Therapeutics.

SPECIAL LECTURERS.

Hubert Work, M.D., Pueblo, Some Diseases of the Nervous System.

Pembroke R. Thombs, M.D. (Superintendent of State Insane Asylum), Mental Diseases.

Col. Alfred A. Woodhull, M.D. (U.S.A.), Preventive Medicine.

Richard W. Corwin, M.D., Pueblo, Surgery.

A. M. Holmes, M.D., Haematology.

Charles Gresswell, M.R.C.V.S., (State Veterinary Surgeon), Veterinary Sanitary Science.

DEPARTMENT OF DENTISTRY.

FACULTY.

William T. Chambers, D.D.S., Dean, Professor of Operative Dentistry, Orthodontia, Crown and Bridge Work.

Manfred S. Fraser, D.D.S., Secretary, Professor of Materia Medica, Therapeutics and Bacteriology.

Luman M. Giffin, M.D., Professor of Anatomy and Physiology.

Carried Forward, \$ 37,765.00

Brought Forward, \$ 37,765.00

Hiram A. Fynn, D.D.S., Professor of Regional Anatomy
and Dental Histology.

Charles Skeelee Palmer, Ph.D., Professor of Chemistry.

John Gardiner, B.Sc., Professor of Histology.

J. Stewart Jackson, D.D.S., Professor of Prosthetic Den-
tistry, Metallurgy and Oral Surgery.

A. LeRoy Whitney, D.D.S., Professor of Pathology and
Superintendent of Infirmary.

John H. Parsons, D.D.S., Professor of Operative and
Prosthetic Technics.

SPECIAL LECTURERS.

Wm. Smedley, D.D.S., Denver.

R. B. Weiser, D.D.S., Denver.

M. A. Bartleson, D.D.S., Denver.

E. Parmley Brown, D.D.S., New York.

P. T. Smith, D.D.S., Denver.

A. H. Sawins, M.D., D.D.S., Denver.

S. Davis, D.D.S., Denver.

Sarah May Townsend, D.D.S., Denver.

Dr. M. H. Smith, Colorado Springs.

CLINICAL STAFF.

E. R. Warner, M.D., D.D.S., Denver.

J. N. Chipley, D.D.S., Pueblo.

W. R. Wilson, D.D.S., Aspen.

Theodore Ashley, D.D.S., Greeley.

W. K. Sinton, D.D.S., Colorado Springs.

F. C. Chamberlain, D.D.S., Colorado Springs.

School of Law.

Appropriation for expenses of Law School, including salaries -----	\$ 3,000.00
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FACULTY.

Moses Hallett, LL.D., Dean, Professor of American Con-
stitutional Law and Federal Jurisprudence.

Charles M. Campbell, P.B., B.C.L., Secretary, Professor of
Law.

Oscar F. A. Greene, M.A., Professor of Roman Law.

Carried Forward, \$ 40,765.00

Brought Forward, \$ 40,765.00

William L. Murfree, LL.B., Professor of Law.

Frank E. Gove, B.A., LL.B., Professor of Law.

William M. Maguire, Assistant Professor of American
Constitutional Law.

Albert A. Reed, LL.B., Professor of Law.

Calvin E. Reed, LL.B., Professor of Law.

LECTURERS.

John A. Riner, LL.B., Lecturer on the Law of Criminal
Evidence.

Ebenezer T. Wells, Lecturer on the Law of Real Property.

Willard Teller, B.A., Lecturer on Equity Jurisprudence,
Pleading and Practice.

Hugh Butler, Lecturer on Common Law and Code Plead-
ing, and Peculiarities of Colorado Law and Practice.

Robert Given, B.A., Lecturer on the Irrigation Laws of
the West.

Platt Rogers, LL.B., Lecturer on Criminal Procedure and
History of the Criminal Law.

Luther M. Goddard, LL.B., Lecturer on the Laws of Pat-
ents, Copyrights and Trade Marks.

Robert S. Morrison, Lecturer on the Law of Mines and
Mining.

John Campbell, M.A., LL.B., Lecturer on the Law of Pri-
vate and Municipal Corporations.

Charles S. Thomas, LL.B., Lecturer on the Law of
Evidence.

William C. Kingsley, Lecturer on the Law of Domestic
Relations.

Henry T. Rogers, M.A., Lecturer on the Law of Wills,
Executors and Administrators.

John D. Fleming, B.A., LL.B., Lecturer on the Law of
Insurance.

Lucius M. Cuthbert, M.A., LL.B., Lecturer on the Conflict
of Laws.

Horace G. Lunt, B.A., Assistant Lecturer on the Law of
Private and Municipal Corporations.

William H. Bryant, B.S., LL.B., Assistant Lecturer on the
Law of Evidence.

John H. Denison, B.A., Assistant Lecturer on Equity
Jurisprudence, Pleading and Practice.

Carried Forward, \$ 40,765.00

Preparatory School.

Brought Forward, \$ 40,765.00	
Henry White Callahan, Ph.D., Principal, Teacher of History and Latin. (One-third paid by University, plus \$250) -----	\$ 916.66
Helen Beardsley, B.A., Teacher of Latin and German. (One-third paid by the University) -----	266.66
E. Waite Elder, M.A., Teacher of Physics and Chemistry. (One-third paid by University) -----	333.33
Wesley W. Putnam, B.L., Teacher of Mathematics. (One-third paid by University) -----	233.33
Charles H. Farnsworth, Teacher of Music. (One-third paid by University) -----	64.98
Frank Y. Moseley, B.S., Teacher of Biology. (One-third paid by University) -----	100.00
Hortense Whiteley, B.A., Teacher of Greek. (One-third paid by University) -----	66.66
Edwin L. Eustis, B.A., Teacher of English. (One-third paid by University) -----	66.66
Chester Earl Giblin, Teacher of Drawing. (One-third paid by University) -----	96.00
R. T. Marshall, Janitor. (One-third of four-fifths paid by University) -----	132.00

Other Employees.

J. E. Bemus, Steward -----	\$ 600.00
George R. Moore, Engineer and Carpenter -----	720.00
W. W. McCarter, Fireman and Workman -----	480.00
Eight student janitors -----	837.00
	<hr/>
	\$ 45,678.28

TREASURER'S REPORT.

From October 1st, 1894, to October 1st, 1896.

RECEIPTS.

Balance cash on hand, October 1st, 1894	\$ 4,669.92	
Received from State Treasurer, General Fund, one-fifth mill tax	67,877.52	
Received from State Treasurer, Special Fund, one-tenth mill tax	10,102.91	
Received from State Treasurer, Land Income	9,498.28	
Received from R. T. Mason, Secretary, and Bernice Lochhead, Secretary, tuitions, fees and sundry small receipts	4,900.00	
Received from H. W. McLauthlin, Secretary, medical fees	700.00	
Received from S. A. Giffin, balance returned by Farnsworth	26.60	
Received from University Support, Special ...	39,507.49	
		\$137,282.72

DISBURSEMENTS.

Disbursements as per Vouchers	\$132,500.48	
Cash on hand, October 1st, 1896	4,782.24	
		\$137,282.72

REPORT OF UNIVERSITY SECRETARY.

From September 1st, 1894, to September 1st, 1896.

RECEIPTS.

Balance on hand September 1st, 1894	\$ 135.78	
Tuitions, fees and sundry small receipts, 1894-5	1,252.60	
Tuitions, fees and sundry small receipts, 1895-6	3,223.09	
		\$ 4,611.47

PAID C. G. BUCKINGHAM, TREASURER.

Deposits, 1894-5	\$ 1,255.50	
Deposits, 1895-6	3,000.00	
Balance on hand September 1st, 1896	355.97	
		\$ 4,611.47

Turned over to the Treasurer, \$4,255.50; deducting \$355.50, deposited in September, 1894, and adding \$1,000.00 deposited in September, 1896, we have \$4,900.00, the sum credited in the Treasurer's Report for the corresponding period.

REPORT OF TREASURER OF SCHOOL OF MEDICINE.

From October 1st, 1894, to October 1st, 1896.

RECEIPTS.

Balance in hands of Treasurer, October 1st, 1894.....	\$ 323.45
Balance in hands of Secretary, October 1st, 1894	000.00
Fees received by Treasurer	\$1,114.50
Fees received by Secretary.....	<u>2,023.82</u>
	<u>3,138.32</u>
	\$ 3,461.77

DISBURSEMENTS.

Paid out by Treasurer	\$ 1,189.77
Paid out by Secretary	997.54
Fees returned.....	30.00
Deposited with University Treasurer	200.00
Deposited with University Treasurer.....	500.00
Balance in hands of Treasurer, Oct. 1st, 1896..	248.18
Balance in hands of Secretary, Oct. 1st, 1896..	<u>296.28</u>
	\$ 3,461.77

L. M. GIFFIN, Treasurer.

SECRETARY'S REPORT.

Statement of the Secretary of the Board of Regents of the University of Colorado, as to the total amount of the warrants drawn upon the Treasurer of the University, between October 1st, 1894, and October 1st, 1896, and for what departments and purposes said warrants were drawn, to wit:

Salaries of Professors, Instructors and others regularly employed, including assistants of such employees (excluding Law and Medical Faculty and Instructors of Preparatory School for one year)	\$ 65,228.43
Medical Department—salaries and expenses	9,089.46
Law Department—salaries and expenses	6,883.71
Preparatory School (one year)	3,375.17
Chemical Laboratory—supplies, library and apparatus...	2,446.82
Physical Laboratory—library and apparatus.....	346.67
Civil Engineering—library and apparatus	1,530.71
Greek—library	217.58
Literature and Art—library and supplies	603.58
Biology—library and apparatus and specimens.....	268.43

French and German—library	\$	229.78
Mathematics—library		317.66
Electrical Engineering—library and apparatus		1,611.94
Music—library		147.73
Psychology—library and apparatus		135.99
Ethics—library		66.99
Latin—library		366.42
Philosophy and Pedagogy—library and psy. apparatus ...		440.83
History and Political Economy—library		290.00
Library (including binding)		1,884.83
Periodicals, newspapers, etc.		808.84
Janitors and their supplies		1,808.15
Buildings and grounds	\$13,584.66	
Hale Scientific Building	119.46	
		13,704.12
Regents		2,563.00
Printing, postage and stationery		3,097.47
Sundries, including small cash items and expenses of professors visiting high schools		8,113.80
Furniture and furnishings		911.42
Fuel, lights and oil		4,848.24
Advertising		764.75
Horses and wagon, used on grounds		176.21
Grand total		\$132,278.73

Respectfully yours,

S. A. GIFFIN, Secretary Board of Regents.

BOULDER, COLO., October 1st, 1896.

LIBRARIAN'S REPORT.

October 20th, 1896.

James H. Baker, President of Board of Regents, University of Colorado:

DEAR SIR:—I have the honor to submit, herewith, the Report of the Librarian, covering the period from October 1st, 1894, to October 1st, 1896.

INVENTORY OF BOOKS.

<i>Volumes Accessioned.</i>	<i>October 1, 1894.</i>	<i>October 1, 1895.</i>	<i>October 1, 1896.</i>	<i>Increase.</i>
General Library	*7,058	8,560	10,400	3,342
Public Documents	†2,515	2,830	3,032	517
Totals for each year	9,573	11,390	13,432	
Total accessions, October 1st, 1894, to October 1st, 1896 ...				3,859

*Last accession number—85 volumes deducted in last Report.

†Last accession number—134 volumes deducted in last Report.

SOURCES OF ADDITIONS.

GIFTS—

British Government	50
United States Government	517
Miscellaneous	493
	<hr/>
	1,060

BINDING—

Periodicals	461
Newspapers	12
	<hr/>
	473

PURCHASES—

(Including old books not previously entered)	2,326
	<hr/>
	3,859

SUMMARY.

Total number volumes, as per Accession Register:

General Library	10,400
Public Documents	3,032
	<hr/>
	13,432

DEDUCT.

GENERAL LIBRARY—

Cancellations in Report of 1892	72
Cancellations in Report of 1894	13
	<hr/>
	85

Additional cancellations:

Law books withdrawn	35
Sold	2
Condemned	1
Lost and replaced	4
	<hr/>
	42

Total 127

Less:

Volumes previously deducted, since returned	16
Error in previous deductions	6
	<hr/>
	22

105

PUBLIC DOCUMENTS—

Cancelled in Report, 1892	134
Additional cancellations	37
	<hr/>
	171

Total deductions 276

Present number volumes in Library 13,156

BINDING.

Total number volumes bound since last report:

Newspapers	12
Periodicals	461
Miscellaneous	279

752

The Library's subscription list for current periodicals has remained substantially the same as shown in the last Report. All completed volumes have been bound to date, and 330 bound volumes have been purchased towards the completion of imperfect sets.

Respectfully yours,

ALFRED E. WHITAKER, Librarian.

INVENTORY OF UNIVERSITY PROPERTY.

The following estimates, taken from inventories recently made, are presented as fair approximations:

GROUNDS.

Campus, 52 acres (estimated present value unimproved) ..	\$ 26,000.00
Improvements, as fences, grading, roads, walks, pipes, drains, trees, lake, bridges	8,500.00
	\$ 34,500.00

BUILDINGS.

Main Building (approximate cost)	\$ 36,500.00
University Cottage "	6,500.00
Chemistry Building "	6,300.00
Cottage No. 1 "	8,400.00
Cottage No. 2 "	3,800.00
Medical Building "	2,500.00
Stable and sheds "	1,000.00
Hale Scientific Building "	47,000.00
Building for Engineering and heating plant (approximate cost)	7,900.00
Heating plant—boilers, pipes in ground, fan house (approx- imate cost)	5,500.00
Woodbury Hall (approximate cost)	24,200.00
Observatory "	200.00
Ice House "	200.00
	\$150,000.00

FURNITURE, ETC.

Team, implements, tools, engineer's and carpenter's supplies (value)	\$ 1,280.00
Gymnasium apparatus (cost)	430.00
Room furniture, as chairs, settees, desks, tables, movable cases, pictures, office furniture, dormitory and dining hall equipment (value)	5,470.00
	<u>\$ 7,180.00</u>

LIBRARY.

Library (value)	\$ 25,000.00
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APPARATUS.

Physics	\$ 5,400.00
Chemistry	3,520.00
Biology	2,000.00
Psychology	220.00
Medicine	2,330.00
Dentistry	870.00
Civil Engineering	1,880.00
Electrical Engineering	4,000.00
Literature	470.00
Latin	300.00
Greek	300.00
Mathematics	120.00
	<u>\$ 21,410.00</u>

COLLECTIONS.

Geological and Mineral. (value)	\$ 2,550.00
Art (cost)	1,900.00
	<u>\$ 4,450.00</u>



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ENTH
BIENNIAL REPORT
OF THE REGENTS
UNIVERSITY OF COLORADO.



UNIVERSITY OF ILLINOIS LIBRARY

DEC 28 1920

UNIVERSITY OF ILLINOIS

PRESIDENT'S OFFICE.



1898.



ELEVENTH BIENNIAL REPORT

OF THE

UNIVERSITY OF ILLINOIS LIBRARY

DEC 28 1920

REGENTS

OF THE

UNIVERSITY OF COLORADO.

BOULDER, OCTOBER 1, 1898.

UNIVERSITY OF COLORADO

BOULDER.

To the State Superintendent of Public Instruction, Colorado, and to the Twelfth General Assembly:

The Eleventh Biennial Report, 1896-1898, of the State University, is herewith presented by the Regents.

During the period covered by this report, in all ways the growth of the University has been substantial. There has been a marked development not only in numbers, but in all that pertains to standards, equipment, efficiency and influence. The grade of students in all departments this year is favorably noted, and the superior preparation of a large per cent. of those entering the schools of Law and Medicine is encouraging.

The attendance of the University proper has increased sixfold in six years, that of the Preparatory School threefold, and that of the University as a whole more than fourfold. The development of the University during the past six years may be marked by the following: The organization of the Preparatory School as a distinct department in a building by itself, and securing the coöperation of the City of Boulder in its support; the establishment of a Law School; the reorganization of the Medical School; the opening of the School of Applied Science; addition of professors in the College; organization of Graduate Courses; opening of an allied School of Music; donation of an Art Collection; donation of a very valuable Mineral Collection; large increase of Library and Apparatus; completion of Hale

Scientific Building; construction of central Heating Plant; erection of an Engineering Building, Chemistry Building, Gymnasium, wing of Medical Building, Hospital; extensive improvements of grounds and buildings, including new stable; increase in revenue; closer connection with the High Schools throughout the State; coöperation of the press and citizens; beginning of denominational coöperation near the University; improvement in curricula, in efficiency, standards, reputation and influence at home and abroad.

DEPARTMENTS OF THE UNIVERSITY.

College of Liberal Arts.	{ Classical Course, leading to the degree B.A.
	{ Philosophical Course, leading to the degree B.Ph.
	{ Scientific Course, leading to the degree B.S.

Graduate Courses, leading to the degrees M.A., M.S. and Ph.D.

Colorado School of Applied Science.	{ Civil Engineering, leading to the degree B.S. (C.E.)
	{ Electrical Engineering, leading to the degree B.S. (E.E.)

Colorado School of Medicine.

Colorado School of Law.

Colorado State Preparatory School, conducted by the University.

ATTENDANCE.

The subjoined table shows the growth in attendance during the past few years:

Years.	Univ. Students.	Prep. Students.	Total.
1891-2	66	103	169
1892-3	129	158	287
1893-4	159	146	305
1894-5	204	192	396
1895-6	267	242	509
1896-7	324	276	600
1897-8	337	273	610
1898-9	400 (estimated)	300 (estimated)	700

The register of the Graduates now shows the following figures:

College of Liberal Arts.....	124
Graduate Courses.....	16
Colorado School of Applied Science.....	4
Colorado School of Medicine.....	78
Colorado School of Law.....	43
Honorary Degrees.....	9
<hr/>	
	274
Colorado State Preparatory School.....	250
<hr/>	
	524

GRADUATE COURSES.

Some notes from the new rules of the Graduate Department are presented:

The Faculty of the Graduate Department consists of full professors in the College of Liberal Arts and others engaged in graduate instruction. One year's residence is the minimum time allowed for the Master's degree, and three years' residence for the Doctor's degree. The final steps for obtaining a Master's or a Doctor's degree are as follows: 1. The candidate submits his thesis to the professor in charge of his major subject,

who reports upon it in writing to the Graduate Committee. 2. The candidate undergoes private written examinations by his instructors, who report to the Graduate Committee. The Graduate Committee then recommend for final examination. 3. The Graduate Committee appoint for each final examination an Examining Committee. The examination is under the direction of this committee so appointed; it is oral and open to members of the University Faculties; it is not to exceed three hours. 4. The candidate reads and defends his thesis before the Graduate Faculty; the result is part of the final examination. 5. The Graduate Committee and the Examining Committee together by a majority vote determine the results of the examination and report the same to the Graduate Faculty. The Graduate Faculty recommend for a degree by a majority vote.

The aim of the Graduate Department is a standard that will be recognized by the best universities, hence its growth is carefully guarded. The Doctor's degree is not conferred for mere faithfulness in the acquisition of knowledge; there must be also the power of scientific production.

The Graduate students last year numbered twenty-nine. The Secretary of the Department, who is responsible for organizing the work and recording the progress of the students, is Professor James A. MacLean.

In 1897 the degree of M.A. was conferred upon Mary Louise Dransfield, B.S.—subject of thesis "Education in New England." In 1898 the degree of M.S. was conferred upon Arthur Eugene Beardsley, B.S.—subject of thesis "A List of the Protozoa Observed at Greeley." The degree of M.A. was conferred upon Perley Lamont Clark, B.A.—subject of thesis "The Progressive Secularization of the Public Schools;" Benjamin John Fitz, B.A.—subject of thesis "The Mystery Plays and Their

Relation to Subsequent Literature;" Richard Holmes Powell, Jr., B.A.—subject of thesis "Shakespeare's Theory of Hamlet's Sanity;" James Hixon Van Sickle, B.A.—subject of thesis "Grading and Promotion with Reference to the Individual Needs of Pupils."

THE COLLEGE OF LIBERAL ARTS.

The attendance in the College has rapidly increased each year; it is 50 per cent. larger than in 1895-6, and has nearly quadrupled since 1891-2. The number of professors, instructors and assistants in the College department is twenty-five.

The curriculum has recently been modified to include group electives. Of the 130 hours necessary for graduation, 35 hours, required, are common to the three courses; 20 hours, required, are characteristic of the particular degree B.A., B.Ph. or B.S.; 50 hours are group electives and 25 hours free electives. Thus nearly half of the College work is prescribed, while the remaining half is elective, but under a plan that secures a large measure of consistency.

By recent recommendation of the College Faculty and vote of the Regents "students in the College of Liberal Arts who aim at both the College degree and the degree of the Law School may so choose their electives, under the direction of the Faculty of the College of Liberal Arts, as to receive one year's credit in the three-years' law course." This arrangement will enable students to complete both the four years' College course and the three years' Law course in six years. The plan is in accord with the tendency in the progressive universities and in the many colleges which provide electives that count for one or two years of Law, Medicine or Theology.

A year ago James E. Russell, Professor of Philosophy and Pedagogy, was called to the Deanship of the Teachers' College, a department of Columbia University, at a salary of \$5,000. In January, 1898, Carl W. Belser, Professor of Latin, died. At the close of the school year William J. Waggener, Professor of Physics, resigned on account of ill health. The University felt deeply the loss of these strong men. To fill the vacancies the following appointments were made: in place of Dr. Russell, Arthur Allin, Ph.D., Berlin, then Professor of Psychology and Pedagogy in the Ohio University; in place of Dr. Belser, Fred B. R. Hellems, Ph.D., University of Chicago; in place of Prof. Waggener, William Duane, Ph.D., Berlin. One year ago Charles C. Ayer, Ph.D., Strassburg, was appointed Professor of Romance Languages. Last semester Prof. John Gardiner, at his own request on account of ill health, was relieved of part of his work, and Francis Ramaley, Ph.D., University of Minnesota, was employed as Assistant Professor, the regular salary of the chair being divided between the two. The Department of Philosophy and Pedagogy has been divided into the Department of Philosophy and the Department of Psychology and Education. Francis Kennedy, Ph.D., Leipsig, has been made Assistant Professor of Philosophy.

The policy of appointing graduate students at a nominal salary as assistants in departments has proved fairly satisfactory. Such assistant position is equivalent to a teaching fellowship.

After some experiments in freedom of student attendance on lectures, the Faculty has appointed a Committee on Attendance with liberal powers. The results of this judicious oversight are very favorable.

The helpful relations with the High Schools of the State have been maintained and strengthened. The in-

crease in number and excellence of the Colorado High Schools is remarkable, and yearly new schools are sending students to the University.

The Department of Pedagogy yearly gives a course of lectures to a large club of teachers in Denver.

SCHOOL OF APPLIED SCIENCE.

The School of Applied Science has enjoyed a remarkable growth during the past two years, the increase in students being about 110 per cent. The Engineering Building has been completed by the addition of a second story, giving excellent facilities for instruction. The wing formerly used for a gymnasium has been devoted to shop work. The Department of Civil Engineering has this year received a new impetus. The Department of Electrical Engineering has added a new planer, lathes, wattmeters, testing instruments, electro-dynamometers, work benches, tools and small machines. An excellent photometry room, well equipped, has been constructed for the testing of arc and incandescent lamps. Last year an electric motor was constructed by the students in the shop.

The engineering departments need additional machinery, apparatus and books and larger equipment in the shops to accommodate the increased number of students.

All the graduates of the School thus far have secured good and remunerative positions.

SCHOOL OF MEDICINE.

From September, 1892, to September, 1897, the work of the last two years of the Medical School was conducted in Denver. In June, 1897, the Supreme Court denied to the State University the privilege of conduct-

ing a part of its Medical work in Denver, since which time the entire course has been given at the University.

The courses scheduled in the Medical Department, leading to the degree of Doctor of Medicine, extend through four years of nine months each. The first two years are given to scientific studies as a foundation for medicine. The third year is given to demonstrations, methods of physical diagnosis, and clinics. The fourth year is given to didactic and clinical lectures, and hospital and free dispensary work. In scientific laboratory work the School has recently been made especially strong. The Biological, Anatomical, Chemical and Medical laboratories are large and well equipped. Laboratory courses are given in Qualitative and Organic Chemistry, Histology, Chemical and Experimental Pathology, Bacteriology, Hæmatology, Pathological Histology, Pharmacognosy and Anatomy.

By a liberal subscription of \$8,000 from the County and the City of Boulder, an appropriation of \$5,000 from the Board of Regents and various contributions from citizens, a large three-story Hospital has been erected on grounds adjacent to the campus and near the medical laboratories. This will soon be fitted up in a most complete manner. The location on the bluff overlooking the river, city and surrounding country is unsurpassed in the State. Dr. William H. Riley, Professor of Nervous and Mental Diseases, from his position as Medical Superintendent of the Colorado Sanitarium, is able to furnish many interesting and instructive clinical cases. A free dispensary has been opened in the Medical Building.

Inasmuch as the first year's work in Dentistry is the same as that in Medicine, students of Dentistry who wish to take their first year's work in the University of Colorado can do so with great profit. The Dental Department, which was opened in September, 1896, retained its

organization after the decision in the University case and obtained a new charter under the title of the Colorado College of Dental Surgery. It maintains its loyalty to the University and is a thorough, progressive and flourishing school. William T. Chambers, D.D.S., Denver, is the Dean of the School. The School is located in Denver.

Consequent upon the adoption of the four-year course in 1895 there would regularly be no graduating class in 1898. In view of this fact and of the important arrangements necessary to accommodate the entire school in Boulder, only the first two years' work was given in 1897-8, and only the first three years' work is given in 1898-9. Beginning September, 1899, the full four years' course will be conducted.

The School is now exceptionally well equipped. It is a member of the Association of American Medical Colleges. The large attendance during this, the transition year of the School, surpasses the most hopeful expectations.

SCHOOL OF LAW.

The advancement and prosperity of the University have been distinctly manifested in the Law School. The increase in attendance in two years is 90 per cent.

Recently the services of Judge John A. Riner, of the Federal Bench of Wyoming, have been secured to deliver a course of lectures on the Law of Criminal Evidence and a second course on International Law.

The standards of instruction and examination have been steadily advanced. The change in the prescribed course of study from two to three years took effect with the class entering in September, 1898. That class is the largest in the history of the Law School.

The Law Library has been largely increased by purchase and by several generous donations of books. An

additional room in the Hale Building has been turned over to the Law School.

The method of instruction is a conservative combination of the time-honored lecture system and the widely approved text-book method with the more recent and perhaps more scientific "case method." In the Colorado School of Law the "case method" is used in a sufficient number of subjects to insure the student the mental development and self-confidence which are thought to be its peculiar and most valuable features. Lectures and quizzes have their place in the School in their distinct field of usefulness.

PREPARATORY SCHOOL.

During the past two years the State Preparatory School has grown in numbers and efficiency. This year the enrollment will be three hundred and the number of instructors thirteen. For several years it has been the plan of the University to make its Preparatory School second to none. Great care has been taken in selecting instructors. In science the work is in advance of any of the college requirements. The School requires ten per cent. more work in Physics than is required for admission to Harvard. In Greek the students read eight books of Homer, in Latin ten books of Virgil. Modifications have been made in the course of study which are in keeping with the most progressive educational thought.

The Preparatory Building has proved itself well adapted to the requirements of the School. It is thoroughly equipped with physical, chemical and biological laboratories, and the library, started by Mr. McKenzie, is constantly growing.

As stated in the last report, the University pays one-third of all expenses, the City of Boulder the remainder.

COLORADO SCHOOL OF MUSIC.

The year 1898 opened with the School of Music in far better condition than it has ever been before. The School Board of Boulder offered the use of the Preparatory Building to the School of Music, and this is now its headquarters. The new location has greatly increased the facilities of the school in every direction. Lessons are given in the building and lectures are conducted there. Recitals by instructors or pupils occur every alternate Friday. The assembly room affords an excellent opportunity for evening concerts. A concert-grand piano has been located in the building and placed at the disposal of the pupils.

The School of Music has begun the plan of paying its instructors regular salaries, enabling it to procure the best instruction. The increased attendance, which numbers about eighty this fall, gives promise of an excellent future for the school.

The School of Music is not a department of the University, but is allied with its interests. It is in no way supported by the University.

BUILDINGS AND GROUNDS.

Among the minor improvements on the University grounds may be noted the removal of the stable and wood yard from their prominent central position and the erection of a new stable on a remote portion of the campus; repairing heating plant and pipe line; extension of stone walks; removal of boiler from Woodbury Hall; extension of water pipes.

The building formerly known as the hospital has been improved by the addition of a wing, which has been equipped as a bacteriology laboratory. The building is now known as the Medical Building. In April, 1898,

three new buildings were completed and dedicated: the Engineering, Gymnasium and Chemistry buildings. Addresses were given by Governor Alva Adams and General Irving Hale. The Chemistry Building is but one wing of a proposed complete structure. The Engineering Building was completed by the addition of a second story. The Gymnasium is entirely new and complete. Work on a new Hospital was begun in June, 1898, but owing to delay in receiving materials the building was not ready for occupancy at the opening of the first semester. The Hospital is being erected at a cost of \$15,000; it will accommodate forty patients. Its location is on the northeast corner of the campus, on the bluff adjoining the river, and is one of the most sightly and beautiful in the region. To extend the hospital grounds, 200 front feet of land were purchased at a cost of \$800. To the fund necessary for the erection of the Hospital, Boulder County contributed \$5,000 and the City of Boulder \$3,000 for specific services to be rendered by the Medical Faculty. In addition the University appropriates \$5,000 and citizens of Boulder contribute the remainder.

The library rooms in the Main Building have been altered so as to afford better accommodations. A new entrance has been made and a former lecture room turned over to the library.

NEEDS.

Amongst the needs enumerated in the report of 1896 were completion of Engineering Building, wing of new Chemistry Building, addition to Medical Building, Gymnasium, removal of stable and wood yard. Although the money was not provided by the General Assembly, the needs became so imperative that the Regents voted for these purposes a portion of the Permanent Land Fund. With a surprising economy these improvements, including walks, pipe lines and furnishings, were made at

a total cost of about \$30,000. This entire sum, as well as the \$5,000 appropriated from the same source for the Hospital, should be restored to the fund by special legislative appropriation.

The need of a Library Building and of a new Main Building still remains. The erection of a Library Building should be postponed no longer. If the State's finances will not warrant the immediate erection of a Main Building, at least the auditorium of the old building should be extended. Its present crowded condition is hardly endurable.

The need of more books, more apparatus, more instructors remains, a need that can be met only by larger appropriations. In view of the remarkable growth of the University and of the harmful economy now necessarily practiced, the usual appropriation for the University is painfully inadequate. The special fund of \$40,000, in addition to the one-fifth of a mill, voted by the last three General Assemblies for each biennial period, should be doubled.

The University asks of the Legislature, in addition to the one-fifth mill, the following sums for 1899-1901:

For additional support, 1899-1901.....	\$ 80,000
For addition to Auditorium.....	10,000
For Library Building.....	50,000
To restore to the Permanent Land Fund money taken therefrom.....	37,000
	<hr/>
	\$177,000

The previous report showed gifts to the University valued in the aggregate at \$27,000. The gifts during the past two years are as follows:

County of Boulder towards Hospital.....	\$ 5,000
City of Boulder towards Hospital.....	3,000
Citizens of Boulder towards Hospital.....	2,000
Dr. Albert L. Bennett, African curios (estimated).	50

D. S. Wakenight, petroleum specimens.....	\$25
Prof. George H. Stone, Cripple Creek ores.....	50
Smithsonian Institute, rock specimens.....	40
J. Hartley, rock specimens.....	3
Prof. Milton Moss, tellurium ores.....	3
Dr. George Burleigh, anatomical chart.....	10
Various contributions, books and charts for pedagogical museum.....	75
Donations to Library, as tabulated below, esti- mated value.....	1,300

General Library. Books. Pamphlets

James H. Baker.....	100 vols.	
Charles Caverno.....	19 vols.	
Walter H. Nichols.....	84 vols.	43
Nellie Rust.....	93 vols.	
Guy V. Thompson.....	278 vols.	33
Mr. and Mrs. W. H. Thompson.....	99 vols.	
United States Government, various departments	600 vols.	400
Maharaja of Jeypore, portfolios of Indian architecture.....	6 vols.	
John Gardiner.....	9 vols.	
Joseph Wolff.....	17 vols.	
Colorado Superintendent of Public Instruction	33 vols.	
Rev. Horace L. Wheeler, Le Keux, Memorials of Cambridge, with engraved views; other volumes..	9 vols.	5
Various contributions.....	449 vols.	1,053

Law Library.

Calvin E. Reed.....	87 vols.	86
Henry F. May.....	158 vols.	
Charles M. Campbell.....	92 vols.	
Colorado Secretary of State.....	34 vols.	
Various contributions.....	2 vols.	

Medical Library.

Various contributions.....	52 vols.
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Total	2,221 vols.	1,620
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Probably in the measure of good to be accomplished and for perpetuating an honorable name, a gift to the State University is one of the best possible benefactions. Gifts may be made for any of the following purposes:

Building for Christian Associations.

Chapel.

Ladies' Dormitory.

New University Building.

Library Building.

Building for Law School.

Astronomical Observatory.

Funds for needy students.

Endowment of chairs.

Art collections.

Library.

Apparatus.

Improvement of grounds.

RELATIONS TO THE STATE.

The standing of the University before the people never was so strong as to-day. The relations with the various high and fitting schools yearly bring larger numbers of students to the University, and there is a more general recognition of the worth and promise of Colorado's institution for higher education.

In pursuance of the plan outlined in the last report, the Episcopalians last year initiated work in Boulder for their students in the University by offering a course of lectures on broad religious themes and by forming a club of Episcopalian students. The lectures will be continued the present year. It is the purpose of the church to create a plant of its own near the University, with a view of using the University courses. The Presbyterians last year appointed Rev. William Robson Notman, D.D., as lecturer in Ethics, and he is to continue his work this year by giving, in some building adjacent to the University, lectures on the History and Philosophy of

Religion. This being a scientific and culture course, students electing it will receive credit from the College Faculty. Last year the Baptists and the Christians appointed committees to report upon the question of conducting their higher educational work in the vicinity of the University.

In these days, when a large equipment is absolutely necessary to carry on honestly the work of higher education, this plan appears full of wisdom, since it enlists for a common cause the sympathetic efforts of all the important elements in the State, has a beneficial influence upon the University without in any way hampering its freedom, broadens the interests of the religious denominations, offers them the use of the superior educational advantages which the State affords, and satisfies their demand for denominational instruction and influence. Moreover it insures the success of a great University in the Rocky Mountain region—a success that will mean much to Colorado and will prove a boon to invalid students in every other state in the Union.

REPORTS SUBMITTED.

We submit herewith the Pay Roll of the University, Treasurer's Report, Report of the University Secretary, Report of the Treasurer of the Medical School, Secretary's Report, Report of the Librarian, and an Inventory of Property.

Respectfully submitted,

THE BOARD OF REGENTS OF THE UNIVERSITY
OF COLORADO.

JAMES H. BAKER,	
EDWIN J. TEMPLE,	President.
Secretary.	

APPENDIX.

PAY ROLL OF THE STATE UNIVERSITY.

(Including Fixed Appropriations for the Law and Medical Schools.)

James H. Baker, M.A., LL.D., President.....\$ 4,500.00

College of Liberal Arts.

J. Raymond Brackett, Ph.D., Dean, Professor of Comparative and English Literature...	\$ 2,000.00
Mary Rippon, Professor of the German Language and Literature.....	1,600.00
Charles Skeelee Palmer, Ph.D., Professor of Chemistry	2,000.00
Ira M. DeLong, M.A., Professor of Mathematics	2,000.00
John Gardiner, B.Sc., Professor of Biology (not full work).....	800.00
Maurice E. Dunham, M.A., Professor of Greek	2,000.00
James A. MacLean, Ph.D., Professor of History and Political Science.....	2,000.00
Arthur Allin, Ph.D., Professor of Psychology and Education.....	2,000.00
Fred B. R. Hellem, Ph.D., Professor of Latin.	1,600.00
Charles C. Ayer, Ph.D., Professor of Romance Languages	1,600.00
William Duane, Ph.D., Professor of Physics..	1,600.00
Francis Ramaley, Ph.D., Assistant Professor of Biology.....	1,200.00
Francis Kennedy, Ph.D., Assistant Professor of Philosophy.....	1,200.00
Charles H. Farnsworth, Instructor in Music..	1,000.00
Louis J. Campbell, M.A., Instructor in English	1,200.00

Fordyce P. Cleaves, M.A., Instructor in Elo- cution	500.00
Calvin S. Brown, Ph.D., Instructor in Litera- ture	200.00
May V. Henry, B.A., Assistant in German...	200.00
Barry Hogarty, Assistant in Chemistry.....	500.00
Thomas M. Blakslee, Ph.D., Assistant in Math- ematics	400.00
Robert S. Breed, B.S., Assistant in Biology...	500.00
Benjamin J. Fitz, M.A., Assistant in History..	200.00
Jessie P. Brown, B.A., Assistant in Latin....	200.00
John C. Blake, Assistant in French.....	54.00

Alfred E. Whitaker, M.A., Librarian.....	1,500.00
Homer A. A. Smith, Assistant in Library.....	200.00
Charles F. Breed, B.S., Secretary.....	600.00
Omar E. Garwood, Assistant Secretary.....	240.00

Edwin J. Temple, Secretary Board of Regents.	300.00
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\$ 33,894.00

School of Applied Science.

Henry Fulton, M.S., Dean, Professor of Civil Engineering	\$ 2,000.00
George H. Rowe, B.S., Professor of Electrical Engineering	1,900.00
John G. Kellar, B.A., Assistant in Civil En- gineering	100.00
Lucius I. Wightman, Assistant in Drawing...	100.00
J. Lloyd Burnham, Assistant in Electrical En- gineering	100.00
Melvin Price, B.S., Assistant in Electrical En- gineering	100.00

\$ 4,300.00

George R. Moore, Assistant in Wood and Iron
Work (salary noted elsewhere).

The remaining work of the School of Ap-
plied Science is done by professors in the Col-
lege of Liberal Arts.

School of Medicine.

Appropriation for expenses of Medical School, including salaries.....\$	4,500.00
Luman M. Giffin, M.D., Dean, Professor of Anatomy and Physical Diagnosis.	
Charles Skeelee Palmer, Ph.D., Professor of Chemistry.	
John Gardiner, B.Sc., Professor of Histology.	
A. Stewart Lobingier, B.A., M.D., Professor of the Principles of Surgery and Clinical Sur- gery.	
Emley B. Queal, M.D., Professor of Physiology.	
Horace O. Dodge, M.D., Professor of Materia Medica and Therapeutics.	
Eugene H. Robertson, Ph.M., M.D., Professor of Pathology and Bacteriology.	
John Chase, B.A., M.D., Professor of Ophthal- mology, Otology and Rhinology.	
Thomas E. Taylor, B.A., M.D., Professor of Ob- stetrics.	
William H. Riley, M.S., M.D., Professor of Mental and Nervous Diseases.	
William B. Craig, M.D., Professor of Clinical Surgery and Pelvo-Abdominal Surgery.	
George H. Cattermole, M.D., Professor of Dis- eases of Children.	
Frank E. Waxham, M.D., Professor of Medi- cine, Clinical Medicine and Laryngology.	
John H. Parsons, D.D.S., Professor of Oper- ative and Prosthetic Dental Technics.	
Francis Ramaley, Ph.D., Assistant Professor of Histology.	
Charles Fisher Andrews, M.D., Lecturer on Hygiene and Medical Jurisprudence.	
LaFayette Z. Coman, M.D., Lecturer on Minor Surgery and Bandaging.	
Charles S. Elder, M.D., Assistant in Gynecol- ogy and Abdominal Surgery.	
Robert S. Breed, B.S., Assistant in Histology.	

George O'Brien, M.D., Demonstrator of Anatomy.

Mary Alice Lake, M.D., Demonstrator of Anatomy.

School of Law.

Appropriation for expenses of Law School, including salaries.....\$	3,000.00
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Faculty.

Moses Hallett, LL.D., Dean, Professor of American Constitutional Law and Federal Jurisprudence.

Charles M. Campbell, P.B., B.C.L., Secretary, Professor of Law.

Oscar F. A. Greene, M.A., Professor of Roman Law.

William L. Murfree, LL.B., Professor of Law.

Frank E. Gove, B.A., LL.B., Professor of Law.

Albert A. Reed, LL.B., Professor of Law.

Calvin E. Reed, LL.B., Professor of Law.

James A. MacLean, Ph.D., Professor of History and Political Science.

Lecturers.

John A. Riner, LL.B., Lecturer on International Law.

Ebenezer T. Wells, Lecturer on the Law of Real Property.

Willard Teller, B.A., Lecturer on Equity Jurisprudence, Pleading and Practice.

Hugh Butler, Lecturer on Common Law and Code Pleading, and Peculiarities of Colorado Law and Practice.

Robert Given, B.A., Lecturer on Irrigation, Water Rights and Riparian Privileges.

Platt Rogers, LL.B., Lecturer on Criminal Procedure and History of Criminal Law.

Luther M. Goddard, LL.B., Lecturer on the Laws of Patents, Copyrights and Trade Marks.

Robert S. Morrison, Lecturer on the Law of Mines and Mining.

John Campbell, M.A., LL.B., Lecturer on the Law of Private and Municipal Corporations.

Charles S. Thomas, LL.B., Lecturer on the Law of Evidence.

William C. Kingsley, Lecturer on the Law of Domestic Relations.

Henry T. Rogers, M.A., Lecturer on the Law of Wills, Executors and Administrators.

John D. Fleming, B.A., LL.B., Lecturer on the Law of Insurance.

Lucius M. Cuthbert, M.A., LL.B., Lecturer on the Conflict of Laws.

Horace G. Lunt, B.A., Assistant Lecturer on the Law of Private and Municipal Corporations.

William H. Bryant, B.S., LL.B., Assistant Lecturer on the Law of Evidence.

John H. Denison, B.A., Assistant Lecturer on Equity Jurisprudence, Pleading and Practice.

Preparatory School.

Henry White Callahan, Ph.D., Headmaster, Instructor in History and Latin. (One-third paid by University, plus \$250).....\$	916.66
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E. Waite Elder, M.A., Instructor in Physics and Chemistry . (One-third paid by University)	333.33
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Horace C. Hall, B.A., Instructor in Mathematics. (One-third paid by University)..	233.33
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Frank Y. Moseley, B.S., Instructor in Biology. (One-third paid by University).....	133.33
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Charles H. Farnsworth, Instructor in Music. (One-third paid by University).....	64.98
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Chester E. Giblin, Instructor in Drawing. (One-third paid by University).....	96.00
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Homer C. Newton, Assistant in Latin. (One-third paid by University).....	33.33
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Eduard M. Morrissey, Assistant in Mathematics. (One-third paid by University).....	33.33
Arthur Ridgeway, Instructor in Civics. (One-third paid by University).....	33.33
Helen Beardsley, B.A., Instructor in Latin. (One-third paid by University).....	266.66
Margaret H. Whiteley, B.A., Instructor in Greek. (One-third paid by University)...	100.00
Charlotte E. Shedd, Instructor in English. (One-third paid by University).....	166.66
Mary Stewart, Assistant in History. (One-third paid by University).....	33.33
R. T. Marshall, Janitor. (One-third of four-fifths paid by University).....	144.00
	<hr/>
	\$ 2,588.27

Other Employees.

James E. Bemus, Steward.....	\$ 600.00
George R. Moore, Engineer and Carpenter....	780.00
W. W. McCarter, Fireman and Workman.....	540.00
Celso Espinosa, grounds.....	480.00
George A. Carlson, grounds.....	108.00
Nine student janitors.....	895.50
Albert Dakan, Law Librarian.....	40.00
Clifford B. Stubblefield, Law Librarian.....	40.00
Mrs. Helen Osgood, care of rooms in Woodbury Hall.....	180.00
	<hr/>
	\$ 3,663.50

Summary.

College of Liberal Arts (including officers of the University).....	\$ 33,894.00
School of Applied Science.....	4,300.00
Medical School.....	4,500.00
Law School.....	3,000.00
Preparatory School.....	2,588.27
Other employees.....	3,663.50
	<hr/>
Total	\$ 51,945.77

TREASURER'S REPORT.

From October 1, 1896, to October 1, 1898.

Receipts.

Cash on hand October 1, 1896..\$	4,782	24	
State Treasurer—General Fund, one-fifth mill tax.....	93,837	25	
State Treasurer—Land Income.	6,901	80	
State Treasurer—Special Ap- propriation, 1895-1896.....	492	51	
State Treasurer—Special Ap- propriation, 1897-1898.....	16,516	73	
L. M. Giffin, Treasurer.....	4,095	38	
Bernice Lochhead, Secretary...	2,000	00	
Guy V. Thompson, Secretary...	4,100	00	
C. F. Breed, Secretary.....	2,500	00	
H. W. Callahan.....	60	00	
Warrants held in bank.....	18,723	79	\$154,009 70

Disbursements.

Warrants as per reports to Re- gents	\$129,556	43	
Warrants held in bank	18,723	79	\$148,280 22
October 1, 1898, cash on hand		5,729	48 \$154,009 70

Respectfully submitted,

J. H. NICHOLSON,

Treasurer.

REPORT ON BUILDING FUND.

To October 7, 1898.

Receipts.

Received from State Treasurer —Per. Land Fund.....	\$ 36,658	81	
Received from City of Boulder —Account Hospital.....	2,000	00	
Received from Boulder County —Account Hospital.....	1,000	00	\$ 39,658 81

Disbursements.

Warrants paid as per reports rendered	\$ 36,658 81	
Balance on hand.....	3,000 00	\$ 39,658 81

Respectfully submitted,

J. H. NICHOLSON,
Treasurer.

REPORT OF UNIVERSITY SECRETARY.

From September 1, 1896, to September 1, 1898.

Receipts.

Balance on hand, September 1, 1896.....	\$ 355 97
Tuitions, fees and sundry small receipts, 1896-7.	3,061 84
Tuitions, fees and sundry small receipts, 1897-8.	4,199 67
Additional gymnasium receipts, and fees afterwards returned.....	92 01
	<hr/>
	\$7,709 49

Disbursements.

By cash to Treasurer, 1896-7.....	\$3,000 00
By cash to Treasurer, 1897-8.....	4,100 00
By returned fees and paid to gymnasium instructor	92 01
Cash on hand, September 1, 1898.....	517 48
	<hr/>
	\$7,709 49

Turned over to Treasurer, \$7,100. Deducting \$1,000 deposited in September, 1896, and adding \$2,500 deposited in September, 1898, we have \$8,600, the sum credited in the Treasurer's report for the corresponding period.

REPORT OF TREASURER OF SCHOOL OF MEDICINE.

From October 1, 1896, to October 1, 1898.

Receipts.

Balance on hand, October 1, 1896.....	\$ 544 46
Fees collected from October, 1896, to October, 1898	4,033 81
From dental apparatus sold (still due \$350)....	150 00
	<hr/>
	\$4,728 27

Disbursements.

Paid Treasurer of the Board of Regents.....	\$4,095 38
Due from the University for bills paid.....	150 17
Balance on hand, October 1, 1898.....	482 72
	<hr/>
	\$4,728 27

L. M. GIFFIN,
Treasurer.

SECRETARY'S REPORT.

Boulder, Colo., October 1, 1898.

To the Board of Regents of the University of Colorado:

Gentlemen—I submit herewith a statement of the warrants issued during the period beginning October 1, 1896, and ending September 30, 1898, and the purposes for which the same were issued:

College and School of Applied Science, in- struction	\$ 73,891 74
School of Medicine, instruction, library, ap- paratus, etc.....	11,028 28
School of Law, instruction, library, etc.....	7,550 77
Preparatory School, instruction and other ex- penses	6,246 18
Library, books, periodicals and supplies....	3,313 19
Biology, books, apparatus and supplies.....	795 20

Chemistry, books, apparatus and supplies...	2,450	81
English, books.....	16	33
Ethics, books.....	96	45
French and German, books, etc.....	362	47
Greek, books, etc.....	188	11
History and Political Science, books.....	393	84
Latin, books.....	379	45
Literature, books, etc.....	651	81
Mathematics, books.....	493	52
Music, books.....	54	08
Philosophy, Pedagogy and Psychology, books, etc.	812	66
Physics, books, apparatus and supplies.....	1,737	72
Civil Engineering, books and apparatus....	538	13
Electrical Engineering, books, apparatus and supplies	2,180	35
Regents, service and mileage.....	3,026	50
Buildings and grounds, salaries of janitors, insurance, etc.....	17,710	68
Furniture and supplies.....	1,635	18
Printing, stationery and postage.....	3,713	41
Fuel and light.....	5,246	98
Advertising (including visitation of schools and institutes, and lectures).....	3,366	16
Unclassified	5,392	18
<hr/>		
Total	\$153,272	18

Warrants issued by Secretary during period..\$153,272 18
Of these, not yet paid by Treasurer..... 4,991 96

Amount paid during period, as shown in
Treasurer's Report.....\$148,280 22

Amount drawn for Buildings from Permanent
Land Fund, as shown in Treasurer's Re-
port\$ 36,658 81

Respectfully submitted,

E. J. TEMPLE,
Secretary.

LIBRARIAN'S REPORT.

James H. Baker, President of the Board of Regents,
University of Colorado:

Dear Sir—I have the honor to present herewith my report on the Library covering the period from October 1, 1896, to October 1, 1898:

Additions.

The total number of volumes accessioned and placed in the Library during the two years is 5,600, derived from the following sources:

Gifts (public documents).....	600	
Gifts (miscellaneous).....	1,621	
		<hr/>
		2,221
Binding		452
Purchased		2,927
		<hr/>
Total		5,600

Donations.

Gifts have been received, entered and acknowledged as follows:

Books	1,697
Miscellaneous pamphlets	1,620

Binding.

Periodicals (completed volumes).....	436
Newspapers	16
Books (rebound).....	90
Books (paper).....	462
	<hr/>
Total volumes bound.....	1,004

Summary.

Number of volumes reported October 1, 1896.....	13,156	13,156
Additions—		
By gifts (public documents)...	600	
By gifts (miscellaneous).....	1,621	
	<hr/>	
	2,221	
By binding	452	
By purchase	2,927	
	<hr/>	
		5,600
Total		<hr/> 18,756
Deductions—		
Cancelled (lost)	112	
Cancelled dup. govt. documents returned to Supt. of Documents	149	
	<hr/>	
		261
		<hr/>
Total number of volumes in Library October 1, 1898.....		18,495

Donations.

General Library.

	Books.	Pamphlets.
James H. Baker.....	100 vols.	
Charles Caverno.....	19 vols.	
Walter H. Nichols.....	84 vols.	43
Nellie Rust.....	93 vols.	
Guy V. Thompson.....	278 vols.	33
United States Government, various departments	600 vols.	400
Mr. and Mrs. W. H. Thompson.....	99 vols.	
Maharaja of Jeypore, portfolios of Indian architecture.....	6 vols.	
John Gardiner.....	9 vols.	

Joseph Wolff.....	17 vols.	
Colorado Superintendent of Public Instruction	33 vols.	
Rev. Horace L. Wheeler, Le Kuex, Memorials of Cambridge, with en- graved views; other volumes....	9 vols.	5
Various contributions.....	449 vols.	1,053

Law Library.

Calvin E. Reed.....	87 vols.	86
Henry F. May.....	158 vols.	
Charles M. Campbell.....	92 vols.	
Colorado Secretary of State.....	34 vols.	
Various contributions.....	2 vols.	

Medical Library.

Various contributions.....	52 vols.	
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Total	2,221 vols.	1,620
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Respectfully yours,

ALFRED E. WHITAKER,
Librarian.

INVENTORY OF UNIVERSITY PROPERTY.

The following estimates, taken from inventories recently made, are presented as fair approximations:

Grounds.

Campus, fifty-two acres (estimated present value unimproved).....	\$ 26,000 00
Hospital grounds (cost).....	800 00
Improvements, as fences, grading, roads, walks, pipes, drains, trees, lake, bridges.	10,300 00
	<hr/>
	\$ 37,100 00

Buildings. (Approximate cost of each.)

Main Building.....	\$ 36,500 00
University Cottage.....	6,600 00

Medical Building.....	8,300 00
Cottage No. 1.....	8,400 00
Cottage No. 2.....	3,800 00
Anatomy Building.....	2,500 00
Woodbury Hall.....	24,500 00
Hale Scientific Building.....	47,500 00
Engineering Building and heating plant....	17,100 00
Heating plant, boilers, pipes in ground, fan house	6,000 00
Observatory	200 00
Ice house.....	200 00
Stables and sheds.....	1,200 00
Chemistry Building.....	9,700 00
Gymnasium Building.....	5,700 00
Hospital, furnished.....	15,000 00

\$193,200 00

Furniture, etc.

Team, implements, tools, engineer's and car- penter's supplies (value).....	\$ 1,800 00
Gymnasium apparatus (cost).....	500 00
Room furniture, as chairs, settees, desks, tables, movable cases, pictures, office furniture, dormitory and dining hall- equipment, shades and janitor's sup- plies (value).....	9,000 00

\$ 11,300 00

Library.

Library (value).....	\$ 33,000 00
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Apparatus.

Biology	\$ 2,093.00
Chemistry	2,025.00
Civil Engineering.....	2,074.00
Comparative and English Literature.....	848.00
Electrical Engineering.....	4,797.00
Greek	336.00
Latin	20.00
Mathematics	116.00

Medicine	4,686.00
Physics	6,356.00
Psychology	286.00
	<hr/>
	\$ 23,637.00

Collections.

Geological and Mineral. (value).....	\$ 2,392.00
Art (cost).....	1,800.00
	<hr/>
	\$ 4,192.00

Summary.

Grounds	\$ 37,100.00
Buildings	193,200.00
Furniture, etc.	11,300.00
Library	33,000.00
Apparatus	23,637.00
Collections	4,192.00
	<hr/>
	\$302,429.00



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library

**TWELFTH
BIENNIAL REPORT
OF THE REGENTS
UNIVERSITY OF COLORADO.**

LIBRARY
OF THE
UNIVERSITY of ILLINOIS



Sp. 6-10



**BOULDER, COLORADO,
OCTOBER 1, 1900.**

UNIVERSITY OF COLORADO.

TWELFTH BIENNIAL REPORT OF THE REGENTS, 1898--1900.

To the State Superintendent of Public Instruction, and the Thirteenth General Assembly:

The Twelfth Biennial Report, from October 1, 1898, to October 1, 1900, is herewith presented by the Regents.

We call attention to these points in the Report:—The number of Master's degrees conferred in 1900; the growth in numbers; the improved quality of preparation for the University; revision of requirements for admission, with the co-operation of the high schools of the state; the privilege extended to college seniors, aiming at the study of Medicine, of electing one year's work in the School of Medicine; graduation of the first class in Medicine since the reorganization of this school; the advanced standard of admission to the schools of Law and Medicine; gifts; co-operation with state universities. Special attention is invited to the history of the citizens' loan, and the subject of needs of the University.

DEPARTMENTS. *

The departments of instruction in the University of Colorado are comprehended under the following divisions:

I. COLLEGE OF LIBERAL ARTS:

Classical Course, leading to the degree B. A.

Philosophical Course, leading to the degree B. Ph.

Scientific Course, leading to the degree B. S.

II. GRADUATE COURSES, leading to the degrees M. A., M. S., and Ph. D.

III. COLORADO SCHOOL OF APPLIED SCIENCE:

Civil Engineering, leading to the degree B. S. (C. E.)

Electrical Engineering, leading to the degree B. S. (E. E.)

IV. COLORADO SCHOOL OF MEDICINE.

V. COLORADO SCHOOL OF LAW.

COLORADO STATE PREPARATORY SCHOOL. (Separate Organization, Grounds and Building. Conducted by the University.)

*The Colorado College of Dental Surgery, and the Colorado School of Music, described in the catalogue, have only a friendly and helpful relation to the University. Their students are not listed or enumerated in the University records. For full statement see the University catalogue.

ATTENDANCE.

The subjoined table shows the growth in attendance during the past few years:

Years.	Univ. Students.	Prep. Students.	Total.
1891-2	66	103	169
1892-3	129	158	287
1893-4	159	146	305
1894-5	204	192	396
1895-6	267	242	509
1896-7	324	276	600
1897-8	337	273	610
1898-9	390	310	700
1899-00	433	356	789
1900-1	475 (estimated)	375 (estimated)	850

GRADUATES.

The register of the Graduates now shows the following figures:

College of Liberal Arts	173
Graduate Courses	28
Colorado School of Applied Science	21
Colorado School of Medicine	85
Colorado School of Law	56
Honorary Degrees	11
	<hr/>
	374
Colorado State Preparatory School	314
	<hr/>
	688

GRADUATE COURSES.

A new rule in the Graduate Department draws a sharper distinction between the Graduate Courses, and courses which may be elected by undergraduates. Another new rule requires the candidate for the Master's degree to deposit a larger number of bound copies of his thesis with the librarian of the University. In other respects the rules adopted at the organization of the Department remain substantially unchanged.

The aim of the Graduate Department is a standard that will be recognized by the best universities, hence the higher degrees are carefully safeguarded. It may be noted, however, that the number of candidates for the Master's Degree has steadily increased. A more important fact is the noticeable improvement in the quality of the theses submitted by the candidates for this degree.

The graduate students last year numbered twenty-two. Of these Miss Jessie Pell Brown was awarded a fellowship in Latin, in the University of Pennsylvania, and Mr. Homer Curtis Newton was awarded a fellowship in Latin, Cornell University.

In 1899, the degree of Ph. D. was conferred on Mr. Calvin Smith Brown; subject of thesis: "The Later English Drama"—Mr. Arthur John Fynn; subject of thesis: "The Pueblo Indian as a Product of Environment." The degree of M. A. was conferred on Miss Jessie Pell Brown; subject of thesis: "Conditional Sentences in the Latin Lyric Poets"—Miss May Virginia Henry; subject of thesis: "Some Phases of Poetical Ornament in the De Rerum Natura of Lucretius." The degree of M. S. was conferred on Mr. Robert Stanley Breed; subject of thesis: "The Sunset Trachyte."

In 1900 the degree of M. A. was conferred on Miss Annette E. Ferris; subject of thesis: "The Jesuit Missions among the Hurons"—Mr. Frank Albee Giffin; subject of thesis: "Nine Definitions of the Real Logarithm of a Real Positive Number, together with an Introductory Digression on the Reversion of Series"—Mr. Harry McGinnis; subject of thesis: "Sequence of Tenses in Horace"—Mr. Homer Curtis Newton; subject of thesis: "Epigraphical Evidence at Rome for the Reign of Vespasian"—Mr. Chester Earl Smedley; subject of thesis: "Relation of Milton's Poetry to Italian Renaissance"—Mr. Homer William Zirkle; subject of thesis: "Medical Inspection of Schools." The degree of M. S. was conferred on Mr. Milton Clarence Whitaker; subject of thesis: 1. "An Olivinite Dike of the Magnolia District and the Associated Picrotitanite," 2. "The Separation of Iron and Titanium."

The Secretary of the Department who is responsible for organizing the work and recording the progress of the students is Professor Charles S. Palmer, Ph. D.

COLLEGE OF LIBERAL ARTS.

College seniors, who have fulfilled their basic and characteristic requirements and declare their intention of proceeding to the degree of M. D. in the University of Colorado, may be allowed to elect subjects catalogued in the first year of the Medical course. This plan was adopted for the Medical School in 1899, and a like plan for the Law School in 1898.

The University has to regret the loss of a number of gifted men. Professor John Gardiner, on account of ill health, retired from active service in the University, November, 1898. On grounds of ill health and the necessity of residing in the East, Professor Maurice E. Dunham resigned in June, 1899. Professor James A. MacLean has

recently accepted the presidency of the University of Idaho. Charles H. Farnsworth, Instructor in Music, has accepted the directorship of music instruction in Teachers' College, Columbia. Francis Ramaley, Ph. D. (Minn.), Assistant Professor of Biology, was promoted to Professor Gardiner's chair. George Norlin, Ph. D. (Chicago), was appointed in place of Professor Dunham. Walter H. Nichols, who has taken his graduate work in Michigan, Chicago, Colorado and Columbia universities, has accepted the chair of History and Political Science, made vacant by Professor MacLean's resignation. Assistant Professor Kennedy was last year promoted to a full professorship. Arnold Emch, Ph. D., has been appointed Assistant Professor of Pure and Applied Mathematics.

At a "State University and High-School Conference," held in Boulder December 2 and 3, 1898, a revision of the requirements for admission was fully discussed. Previous to this conference a circular of inquiry had been sent to all the Colorado high schools, and a printed report upon the returns had been placed in the hands of high-school superintendents, principals and teachers. The recommendations of the Conference were adopted by the Faculty January 1899, and the new requirements appeared in the catalogue for 1898-9. Such meetings of the University with the high schools promote the usefulness of the University and we believe much good has come from the two conferences already held.

The professors note with pleasure the constantly improving quality of preparation for the University, as shown by the matriculates from the various high schools of the State.

SCHOOL OF APPLIED SCIENCE.

As in other departments the Engineering School this year, 1900-1901, records the largest attendance in its history. The plan of visiting commercial plants and works of engineering skill has been more fully developed. Theses, the result of investigation in practical problems of engineering, are required of all students before graduation.

This year Assistant Professor Arnold Emch divides his time between the College Mathematics and the Department of Civil Engineering. Professor George H. Rowe is granted leave of absence for the current year. His place is filled by Arthur H. Ford, E. E. (Wisconsin and Columbia).

SCHOOL OF MEDICINE.

In 1899-1900 the full four years' course was given in the Medical School and a class was graduated. The School is now thorough-

ly reorganized, with well equipped general and special laboratories and excellent instruction. Students have the advantage of the Hospital clinics, and the dispensary clinics held in the Medical Building. Each senior class arranges for additional clinical work in Denver.

The University Hospital was dedicated November 19, 1898, and opened to patients near the same date. In all ways the Hospital has proven a great success. Already during some of the months it has more than paid expenses. The management hope that soon it will be made to clear all expenses.

Beginning September 1900, a complete course of study in a recognized high school or its equivalent is required for admission to the Medical School.

By removal of the Freshman Chemical laboratory to the Chemistry Building, the entire Medical Building is now at the service of the School of Medicine.

SCHOOL OF LAW.

In consequence of the change in the prescribed course of study from two to three years which took effect in September, 1898, no class was graduated in 1900. Beginning September, 1900, applicants for admission must present certificates of graduation from an approved four-year high school or show an equivalent preparation.

The system of study remains a conservative combination of lectures and text-book with the "case method." More attention is devoted to the teaching of Practice, especially in the third year. Courses have been introduced which cover substantially the entire Code of Civil Procedure and the leading cases. A practice court has been instituted, modelled on the district courts of Colorado, presided over by a former district judge and district clerk. The sessions of the court are held twice each week, from the second Monday in October to the last Thursday in March. Student counsel are taught to conduct causes in all stages of procedure.

An additional room in the Hale Building has been given to the Law School.

PREPARATORY SCHOOL.

The Preparatory School is still conducted on the plan inaugurated several years ago. It remains the Preparatory Department of the University, as when it was accommodated in the University buildings. By joint agreement the University pays one-third of the annual expenses and Boulder two-thirds.

The modified course of study arranged two years ago is now

in effect. The school grows yearly in numbers and efficiency. The Regents note with pleasure the spirit of enthusiasm and hard work which pervades the School.

The present quarters are too crowded for convenience and comfort, and more room will soon be a necessity.

BUILDINGS AND GROUNDS.

The University Hospital was dedicated November 19, 1898. The following programme was presented:

Invocation, Rev. Frederick F. Johnson.

Music, University Glee Club.

Brief addresses: Governor Alva Adams; President James H. Baker; Dean Luman M. Giffin; Hon. H. H. Burch, chairman Boulder County Commissioners; Hon. C. Ricketts, Mayor of Boulder.

Music, University Glee Club.

Address, The Hospital—Whom it Helps and Who Help It. Wm. P. Munn, M. D.

Music, University Glee Club.

Benediction, Rev. Henry H. Walker.

Inspection of Hospital.

Only the absolutely necessary improvements of buildings and grounds have been made. The sewerage has been connected with the city system at a cost of \$800.00, the frontage charged by the city, and in several places sewers and drains have been repaired and extended. Some changes were made in the Chemistry Building last summer to accommodate all the students in Chemistry, and the entire Medical Building was turned over to the School of Medicine. The necessary changes and repairs in the Medical Building included a new heater and increased radiation. In July 1899, the Library was removed from the third story of the Main Building to the Basement. This was done by advise of the architect for the safety of the building. The change was made at considerable expense. The rooms on the third floor were turned into class rooms. At the same time the statuary was transferred to the third floor and the former statuary room was made a reception room for lady students. In the fall of 1899, a gallery was built in the chapel to accommodate the increased number of students.

CO-OPERATION WITH STATE UNIVERSITIES.

At different times the University of Colorado has published literature relating to the subject of co-operation. Some recent developments in other states are worthy of note.

The following plan is proposed by the Lutherans in Nebraska:

"First—It is proposed to construct within easy walking distance of the state university a church dormitory or home containing rooms for students, boarding hall, library and reading rooms, rooms for lectures, recitations and religious services—a building carefully planned and adapted to the peculiar use for which it would be intended.

"Second—This building is to be in charge of chosen and appointed representatives of the church, whose duty it would be to protect and direct and instruct all students who would apply for admission into this church educational home.

"Third—The instruction is to comprehend all subjects which our pastors and people would desire to have presented to the youth of our church, except those freely furnished by the thoroughly equipped state university. This instruction might, or it might not, include a complete theological course.

"Fourth—The students are to be brought into this, as into any other Lutheran school, by the influence and direction of the management and pastors and parents and friends—and are to be subject to the rules established for their government, and to pay a reasonable price for their accommodations, and to take advantage of the privileges of the state university precisely as if living at the homes of their parents in the same vicinity.

"Among the good results to come to our people from the establishment of the Lutheran annex to the state university, then, are the following:

"First—Greater opportunities offered to our students. These would consist, on the one hand, of the undisputed and undiminished privileges of the thoroughly manned and equipped and endowed state university; and, on the other, of the most undisturbed religious and denominational influences of the Lutheran home.

"Second—Less cost to our students. This principally because of the free tuition in the state university and sometimes because of the reduced traveling expenses.

"Third—Greater opportunities for church work. This because, relieved of the enormous burden of general recitation room work, the management would be free to give their best effort to specific service.

"Fourth—Greatly increased number of students on

whom to operate. Whether the reasons for it are satisfactory to us or not, the fact remains that a large majority of our western students, in the correct education of whom we are interested, and for the correct education of whom we are largely responsible, are now in institutions of learning in which our church, as such, has small part and takes little interest. To no other church school could so many of these be so successfully directed as to the church annex to the state university.

"Fifth—Greatly reduced cost to the church. This because a smaller force would be competent to perform the necessary work efficiently, and because of the diminished cost of buildings and library, and because of the absolute relief from investment in expensive but useful apparatus. Thus the church, not altogether released, but greatly relieved, would enjoy the stimulus of a good prospect of meeting financially and in a business like manner her educational engagements."

A committee of Baptists in the state of Washington, officially appointed, makes the following report:

"The Baptists of Washington have no institution of learning doing collegiate work. The University of Washington (state institution) is permanently established. Its resources are ample and growing. It is proposed to establish by the side of the university a Christian institution, federated with it, and under the auspices of the Baptist denomination; to equip it as a dormitory, on the model of a Christian home, and with a thoroughly competent man as head or president. The immediate equipment to represent an investment of \$10,000; ultimately to be \$250,000.

"The scope of the institution to be as follows:

"1. Open its doors, as a dormitory, to Baptist and all other students wishing to avail themselves of such a home while they are pursuing their studies in the university.

"2. Provide religious services for the Lord's day and courses of sermons by representative ministers.

"3. Strengthen and develop Christian character and conduct.

"4. Provide lecture courses to be filled by the most eminent talent available.

"5. The president, with other instructors, as the situation may require, to teach those branches of learning essen-

tial to a finished education upon which the state does not enter, or enters in an incomplete way.

"6. To enlarge the curriculum until every gap in full university work—occasioned by the secular nature of the state university—is filled.

"7. To found scholarships and fellowships."

President Patton of Princeton University in his sermon at the Princeton Sesquicentennial used the following language:

"I sometimes wonder whether more use might not be wisely made of the state universities; whether a wise economy of resources, as in the newer states, might not suggest such an affiliation of various educational interests as would serve to throw around young men a distinctly Christian influence, and at the same time open to them the opportunities of a wide range of study which only a large institution can offer."

A residence and Christian home for young ladies attending the University of Wyoming has been erected by the Episcopalians in Wyoming. The home is situated in a favorable part of the town of Laramie at a five minutes walk from the university. With the well equipped state university almost at the door, students have the great advantage of combining a university education with residence in a well conducted Christian home.

President Benjamin Ide Wheeler of the University of California, Berkeley, writes as follows:

"There is a strong sentiment in favor of establishing the theological seminaries in the town of Berkeley in order that the men who are preparing themselves for the ministry may at the same time pursue work in the University of California. The Christian church is the only denomination which has as yet taken this step, but the Pacific Theological Seminary of the Congregational church is about to erect a fine building in Berkeley, close to the university grounds, and to remove to these new quarters from its present home in Oakland."

President James B. Angell of the University of Michigan has recently written:

"Three of the religious denominations have established guilds here and two of them have erected buildings which serve as a sort of club houses for their students, and provide courses of lectures for them during the year. Another denomination has a foundation here for the partial support of lecturers on religious themes who are expected primarily to

reach the students of their own denomination in their own buildings, or in the rooms of our Students' Christian Association."

The University of Missouri reports as follows:

"The Christian Church (Disciples) has a Bible college in the vicinity of the university. The Northern and Southern Presbyterians are discussing now the advisability of establishing some institution in the vicinity of the university. The Episcopalians have by a unanimous vote determined that it was advisable for them to establish a Guild here."

The Regents and Faculty of the University of Colorado are favorable to the development in Colorado of some such plan of co-operation. It remains for the denominations themselves to take further positive action.

NEEDS.

The Regents submitted to the Twelfth General Assembly the following statement of needs:

For support in addition to one-fifth mill, December 1, 1898,	
to December 1, 1900.....	\$ 80,000
For addition to Auditorium	10,000
For Library Building	50,000
To restore to the Permanent Land Fund money taken there-	
from to provide necessary room for students	37,000
	<hr/>
	\$177,000

The Legislature voted \$110,000, \$80,000 for additional support and \$30,000 to begin a library building. Owing to the financial condition of the State not a single dollar of this special appropriation has been received.

During the summer of 1899, the Regents, seeing that the University would be obliged to close its doors, unless heroic measures were adopted, held a special meeting in Denver, July 31, and, after an extended discussion of the whole problem in all its aspects, passed the following resolution:

"In considering the problem now facing the University of Colorado, arising from failure in the state's revenues to meet the appropriations for the various institutions, it appears that the members of the Twelfth General Assembly, representing the people of Colorado, almost unanimously by word and by act of appropriation showed, not only their appreciation of the present work of the University, but a de-

sire and purpose to increase its usefulness; that closing of the University would be a calamity that would injure the State, directly or indirectly, in its every interest; that the sentiment of the State, as shown by the attitude of the press and by the public and private utterances of many influential citizens, is solidly against closing or even crippling the University; that the deficit in the state's revenue affects so many interests that it seems evident the whole question must at an early day come before a special session of the Legislature and ample provision be made to support our institutions and preserve the credit and good name of Colorado; that a number of public spirited citizens are offering to take the risk of advancing funds for immediate needs in opening the University.

In view of these facts, we, the Regents of the University of Colorado, hereby resolve to accept the aid proffered, and direct that the University open on September 11th as regularly announced. In accepting the funds advanced by citizens, we hereby agree to repay the same with interest at six per cent. per annum, if the appropriation made by the last General Assembly is realized, or, at such time as the General Assembly may make specific and adequate provision for the purpose.

Signed,

The Board of Regents of the University of Colorado."

The Boulder Committee, which raised a loan of \$20,000 to warrant the opening of the University in September, 1899, was made up of the following gentlemen:

Mr. Albert A. Reed, Chairman,
Mr. George M. McClure,
Mr. John H. Nicholson,
Mr. Isaac Berlin,
Dr. William B. Stoddard,
Mr. Robert T. Fulton,
Judge Sylvester S. Downer,
Mr. Lucius C. Paddock,
Mr. John W. Day,

Mr. Jay B. Hiskey,
Mr. William H. Allison,
Mr. Charles C. Bromley,
Hon. Edwin J. Temple,
Hon. Richard H. Whiteley,
Mr. Neil D. McKenzie,
Mr. James Cowie,
Mr. Warren C. Dyer,
Mr. Thomas V. Wilson.

At a meeting of some prominent citizens held in Denver, Sept. 20, 1899, "to consider matters of vital interest to the State University," it was voted unanimously to endeavor to secure an additional loan of \$50,000 for the support of the University during the remainder

of the Biennial Period. The following Citizens' Committee to solicit funds was appointed:

General Irving Hale, Chairman,	Judge Owen E. LeFevre,
Mr. William H. Bryant,	Mr. Joseph K. Choate,
Hon. Hugh Butler,	John Chase, M. D.,
Hon. Willard Teller,	Mr. Gustave C. Bartels,
Governor Alva Adams,	Mr. Joel F. Vaile,
President Frank Trumbull,	Mr. James H. Blood,

The persevering and successful work done by both of these committees merits the highest appreciation.

The list of subscribers to the loan appears in the appendix on page 24 and reference is made to that list. Never in the annals of Colorado has a more public spirited and generous act been recorded. It will go down in history that these subscribers saved the University of Colorado in a crisis of its affairs, brought about by no fault in the remotest way connected with the University, and incidentally saved Colorado from loss in material interest, credit and honor. It would be a lasting disgrace to the State, were there any failure to promptly repay the sums advanced.

Each subscriber to the loan, as the money is paid to the Treasurer, receives the following certificate of indebtedness:

THE UNIVERSITY OF COLORADO.

CERTIFICATE OF INDEBTEDNESS.

Boulder, Colorado,1900.

No..... \$

This is to Certify, That there is due to.....
.....or his legal representatives or assigns
the sum of Dollars, for moneys advanced to the University of Colorado, for the support and maintenance of the same during the remainder of the pending biennial period.

This Certificate is one of a series of Certificates of Indebtedness, amounting in the aggregate to the sum of Seventy Thousand Dollars, issued under and by authority of the following Executive Order given on the Seventeenth day of November, A. D. 1899, and is payable, with interest at the rate of Six per centum per annum, from the date hereof until paid, upon call of the Treasurer of the University of Colorado, at such time as the General Assembly of the State of Colorado may make specific and adequate provision for

the payment of the same and funds under such provision become available.

.....of the University of Colorado.

By.....Treasurer.

EXECUTIVE ORDER.

Whereas, The Twelfth General Assembly, by an Act, approved April 19, 1899, appropriated the sum of One Hundred and Ten Thousand Dollars for the maintenance, and the payment of the salaries of, the officers and employes of the University of Colorado, for the years 1899 and 1900, which said appropriation belongs to what is known as appropriations of the third class, and for the payment of which there are at present no funds available in the hands of the treasurer; and,

Whereas, The needs of said University of Colorado are of great consequent urgency, so that the said institution may not be compelled to suspend and close for the want of available funds to maintain the same,

Now therefore, It is declared that an emergency concerning said institution exists, as is contemplated in and by section 4112, Mills' Annotated Statutes; **Wherefore,** I, Charles S. Thomas, Governor of the State of Colorado, by virtue of the authority vested in me, do hereby authorize the contraction of an indebtedness for the remainder of the pending fiscal period, not to exceed the sum of \$70,000 which, in my judgment, is absolutely necessary for the maintenance and support of the said University of Colorado until such time as the General Assembly shall meet, and I do further declare this Executive Order to be in force as of the 1st day of September, 1899.

Witness my hand and the seal of this Office at Denver this 17th day of November, A. D., 1899.

Charles S. Thomas,
Governor.

RESOLUTION OF THE REGENTS OF THE UNIVERSITY OF COLORADO.

In accepting the funds advanced by citizens, we hereby agree to repay the same with interest at Six per cent. per annum, if the appropriation made by the last General Assembly is realized, or, at such time as the General Assembly may make specific and adequate provision for the purpose.

For eight years the University has repeatedly been in danger of losing part of its appropriation. In 1894 it failed to secure some \$23,000 voted for its support and use, and in 1899-1900, \$110,000. In lieu of this last sum citizens have advanced nearly \$70,000, but in any event the University loses \$40,000.

Many educated business men who know universities and their problems, who have noted the struggle, growth and need of our University and understand its value to the youth of Colorado and to the reputation and general interests of the State, repeatedly express the opinion that \$100,000 per year is necessary to properly perform the work of such a University as Colorado demands. Eastern educators express surprise that the University of Colorado can do the kind and amount of work required of it with resources so limited.

The professors and all connected with the University have cheerfully met the conditions of the last two years; but the kind of economy, which the Regents have been forced to employ, would dwarf and soon ruin any institution of higher learning. A growing university must have books and apparatus and sufficient instructors and adequate quarters for its various departments. It should be able to pay fair prices for all services rendered. The Regents feel that for the future the University should be placed on a secure foundation, and be given funds adequate to its genuine needs.

The demand for a Library Building is again strongly urged. On this point see page 6.

The Regents can only point to the condition and needs of the University and earnestly request the generous consideration of the Thirteenth General Assembly. Here follows an estimate for the Biennial Period, from December 1, 1900 to December 1, 1902:—

To repay Citizens' Loan	\$70,000.
Increase of mill rate from one-fifth to two-fifths, or for additional support, December 1, 1900, to December 1, 1902	\$80,000
For Library Building	50,000
To restore to Permanent Land Fund money taken therefrom to provide necessary room for students	37,000
	<hr/>
	\$167,000

GIFTS.

The Tenth Biennial Report dated October 1, 1896, showed gifts to the University at various times since it was founded, estimated in value at \$27,207. The Eleventh Biennial Report records additional

gifts valued at \$11,556. The gifts during the past two years are as follows:—

Mrs. Jean Sherwood, Chicago, two casts: Victory Tying Sandal (bas-relief); Hermes of Praxiteles (bust). (Art Collection).	\$ 8.00
Miss Matilda Van der Poel, Chicago, two casts: Donatello's Angel Blowing Trumpet (bas-relief); Head of John Baptist. (Art Collection).	2.00
Mrs. Blanche Curtis, Boulder, seven mounted photographs. (Art Collection).	7.00
Luther C. Bragg, Boulder, four stuffed birds. (Biology).	20.00
Dr. John Gardiner, Boulder, microscopic preparations. (Biology).	20.00
Dr. John Gardiner, Boulder, one Zeiss microscope. (Biology).	300.00
Students, specimens of plants and animals. (Biology).	
Dr. Frank C. Spencer, New York City, Bones of Cliff Dweller. (Biology).	
Edward Williams, Boulder, fossil plants. (Biology).	
Dr. Carl F. Wolfer, Louisville, fossil plants. (Biology).	
Anonymous, for books. (Chemistry).	50.00
Anonymous, for books. (Chemistry).	5.00
Philip Argall, Denver, box of minerals and other specimens. (Chemistry).	25.00
Luther C. Bragg, Boulder, box of minerals. (Chemistry).	15.00
The Cramp Company, Philadelphia, specimen of manganese bronze. (Chemistry). . . . .	.50
Thomas D. West, Cleveland, books and specimens. (Chemistry).	10.00
John B. Annear, Silverton; Ralph Morris, Cripple Creek; Richard Morrison, Boulder; Edward Williams, Boulder.—Specimens. (Chemistry).	25.00
Anonymous, for laboratory. (Physics).	130.00
Anonymous for books and map. (Romance Languages).	35.00
Anonymous, for books. (Greek).	40.00
Anonymous, Corpus Inscriptionum Latinarum, 31 vols; Ephemeris Epigraphica, 8 vols.—as a Memorial to Professor Carl W. Belser, Ph. D. (Latin).	450.00
Anonymous, for books. (English).	25.00
Anonymous, for books and apparatus. (Electrical Engineering).	40.00
Anonymous, for books and apparatus. (Bacteriological	

and Pathological laboratories of School of Medicine).	35.00
Mrs. J. H. Harbeck, Boulder, for Hospital	100.00
A citizen,	5,000.00

Library gifts as reported on page 30:—

	Books. Pamph. Maps.		
American Bar Association	19		
Dr. W. W. Bulette, Pueblo. (School of Medicine)	231		
Bureau of South American republic	20		
V. Butsch, Boulder	57		
Colorado Secretary of State	62	20	
Colorado Superintendent of Mines	2		
Colorado Superintendent of Schools	3	2	
Anonymous, Corpus Inscriptionum Latinarum; Ephemeris Epigraph- ica—as a Memorial to Professor Carl W. Belser, Ph. D., (Latin)	39		
Dr. John Gardiner	280		
Dr. John Gardiner, Wall map of Europe		1	
Dr. John Gardiner, annual subscrip- tion to "Annals of Botany;" an- nual subscription to "Revue Gen- eral de Botanique."			
Charles H. Farnsworth	11	12	
Massachusetts Bureau of Labor	24	9	
Massachusetts Board of Insanity	1		
Massachusetts Railroad Commissioners	3		
Massachusetts Board of Education	22		
Michigan Superintendent of Schools.. . . .	13		
Smithsonian Institution	17	14	
Dr. William B. Stoddard, annual sub- scription to "Journal of Society of Chemical Industry."			
United States Superintendent of Doc- uments	1,360	399	14
Joseph Wolff	14		
Miscellaneous	129	962	3
	2,307	1,418	18

Total value of Library gifts \$1300.00

Summary \$7642.50

Values duplicated	600.00
Total value of gifts, 1898—1900	\$7042.50

Gifts previous to 1896	\$27,207.00
Gifts, 1896—1898	11,556.00
Gifts, 1898—1900	7,042.00

Total	\$45,805.00
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Probably in the measure of good to be accomplished and for perpetuating an honorable name, a gift to the State University is one of the best possible benefactions. Gifts may be made for any of the following purposes:

Building for Christian Associations.

Chapel.

Ladies' Dormitory.

New University Building.

Library Building.

Building for Law School.

Astronomical Observatory.

Funds for needy students.

Endowment of chairs.

Art collections.

Library.

Apparatus.

Improvement of grounds.

REPORTS SUBMITTED.

We submit herewith the Pay Roll of the University, Report of the University Secretary, Report of the Treasurer of the Medical School, Report on the Building Fund, Report on Citizens' Loan Fund, Treasurer's Report, Secretary's Report, Librarian's Report, Inventory of Property.

Respectfully submitted,

THE BOARD OF REGENTS OF THE UNIVERSITY OF COLORADO.

JAMES H. BAKER,

President,

EDWARD J. MORATH,

Secretary.

APPENDIX.

PAY ROLL OF THE STATE UNIVERSITY.

(Including Fixed Appropriations for the Law and Medical Schools).

James H. Baker, M. A., LL. D., President	\$ 4,500.00
Edward J. Morath, Secretary Board of Regents	300.00

COLLEGE OF LIBERAL ARTS.

Fred B. R. Hellems, Ph. D., Dean; Professor of Latin	1,900.00
Mary Rippon, Professor of the German Language and Literature	1,600.00
J. Raymond Brackett, Ph. D., Professor of Comparative and English Literature	2,000.00
Charles Skeele Palmer, Ph. D., Secretary of the Graduate Faculty; Professor of Chemistry	2,000.00
Ira M. DeLong, M. A., Professor of Mathematics	2,000.00
John Gardiner, B. Sc., LL. D., Professor (retired) of Biology.	
Arthur Allin, Ph. D., Professor of Psychology and Education	2,000.00
Charles C. Ayer, Ph. D., Professor of Romance Languages	1,800.00
William Duane, Ph. D., Professor of Physics	1,800.00
George Norlin, Ph. D., Professor of Greek	1,700.00
Francis Ramaley, Ph. D., Professor of Biology	1,700.00
Francis Kennedy, Ph. D., Professor of Philosophy	1,700.00
Walter H. Nichols, M. A., Professor of History and Political Science	1,600.00
W. R. Smith, M. A., Acting Professor of History and Political Science.	
Arnold Emch, Ph. D., Assistant Professor of Pure and Applied Mathematics	500.00
George C. Taylor, M. A., Instructor in English	800.00
Fordyce P. Cleaves, M. A., Instructor in Oratory and Physical Training	500.00
James M. Wilson, D. D., Instructor in Applied Ethics.	
Henry Houseley, Instructor in Music	600.00
William F. Tambllyn, Ph. D., Assistant in Latin	200.00
Harry M. Varrell, M. A., Assistant in German	200.00

Ethel M. Wright, Assistant in Comparative and English Literature	100.00
John C. Blake, Assistant in Chemistry	300.00
Harvey A. Carr, Assistant in Pedagogy	200.00
William W. Hall, Ph. B., Assistant in French and Spanish	100.00
Charles A. Lory, B. Ped., Assistant in Physics	200.00
Gertrude E. Upton, Assistant in Greek	100.00
Jennie M. Archibald, Assistant in Biology	150.00
Ora S. Fowler, B. Ped., Assistant in Biology	150.00
Benjamin J. Fitz, M. A., Assistant in History	200.00
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Alfred E. Whitaker, M. A., Librarian	1,500.00
Will C. Adams, Assistant in Library	200.00
Omar E. Garwood, Secretary	600.00
J. Vaughan Sickman, B. A., Assistant Secretary	135.00
Harold G. Garwood, B. S., Director of Gymnasium	135.00
Mary R. Savory, Matron Cottage No. 1.....	
Margaret A. Doolittle, B. A., Matron Cottage No. 2.....	135.00
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	\$33,605.00

SCHOOL OF APPLIED SCIENCE.

Henry Fulton, M. S., Dean; Professor of Civil Engineering	\$2,000.00
*George H. Rowe, B. S., Professor of Electrical Engineering	2,000.00
Arthur H. Ford, B. S., E. E., Acting Professor of Electrical Engineering.	
Arnold Emch, Ph. D., Assistant Professor of Pure and Applied Mathematics (salary noted elsewhere)	
Benedict Georgenberger, Assistant in Electrical Engineering	200.00
George R. Moore, Assistant in Electrical Engineering Shop (Salary noted elsewhere)	
The remaining work of the School of Applied Science is done by professors in the College of Liberal Arts.	
<hr/>	
	\$4,200.00

SCHOOL OF MEDICINE.

(The Hospital employees are not included in the following list).
 Appropriation for expenses of Medical School, including salaries\$4,500.00

*On leave of absence for one year. Place filled ad interim by Mr. Ford!

Luman M. Giffin, M. D., Dean; Professor of Anatomy and Physical Diagnosis.

Charles Skeele Palmer, Ph. D., Professor of Chemistry.

A. Stewart Lobingier, B. A., M. D., Professor of the Principles of Surgery and Clinical Surgery.

Emley B. Queal, M. D., Professor of Physiology.

Eugene H. Robertson, Ph. M., M. D., Professor of Pathology and Bacteriology.

John Chase, B. A., M. D., Professor of Ophthalmology and Otology.

Thomas E. Taylor, B. A., M. D., Professor of Obstetrics.

William H. Riley, M. S., M. D., Professor of Mental and Nervous Diseases.

William B. Craig, M. D., Professor of the Principles of Surgery and Pelvic-Abdominal Surgery.

George H. Cattermole, M. D., Professor of Diseases of Children and Clinical Medicine.

Frank E. Waxham, M. D., Professor of Medicine, Clinical Medicine, Laryngology and Rhinology.

Francis Ramaley, Ph. D., Professor of Histology.

Charles Fisher Andrew, M. D., Professor of Materia Medica and Therapeutics.

James R. Dickson, L. D. S., D. D. S., Professor of Operative and Prosthetic Dental Technics.

Lafayette Z. Coman, M. D., Lecturer on Bandaging and Minor Surgery.

Charles S. Elder, M. D., Lecturer on Gynecology and Abdominal Surgery.

Willard J. White, M. A., M. D., Lecturer on Hygiene and Medical Jurisprudence.

George O'Brien, M. D., Demonstrator of Anatomy and Assistant to the Chair of Anatomy.

Oscar M. Gilbert, M. D., Laboratory Instructor in Minor Surgery, Bandaging, Use of Ophthalmoscope, etc.

Newton Wiest, M. D., Assistant to the Chair of Medicine.

Mary L. Ambrook, M. D., Assistant to the Chair of Obstetrics.

John C. Bailar, Assistant to the Chair of Chemistry.

Dessie B. Robertson, D. D. S., D. D. Sc., Assistant in Bacteriology and Pathology.

SCHOOL OF LAW.

Appropriation for expenses of Law School, including salaries \$3,000.00

Moses Hallett, LL. D., Dean; Professor of American Constitutional Law.

William L. Murfree, LL. B., Secretary; Professor of Law.

Charles M. Campbell, P. B., B. C. L., Professor of Law.

Albert A. Reed, LL. B., Professor of Law.

Calvin E. Reed, LL. B., Professor of Law.

Walter H. Nichols, M. A., Professor of History and Political Science.

William C. Kingsley, Professor of Law.

William H. Bryant, B. S., LL. B., Professor of Law.

Robert Given, B. A., Professor of Law.

Thomas M. Robinson, Professor of Practice and Judge of Practice Court.

John A. Riner, LL. B., Lecturer on International Law.

Hugh Butler, Lecturer on Common Law Pleading.

Platt Rogers, LL. B., Lecturer on Criminal Procedure and History of Criminal Law.

Luther M. Goddard, LL. B., Lecturer on Law of Patents, Copyrights and Trademarks.

Robert S. Morrison, Lecturer on Law of Mines and Mining.

John Campbell, M. A., LL. B., Lecturer on Law of Private and Municipal Corporations.

Charles S. Thomas, LL. B., Lecturer on Law of Evidence.

Henry T. Rogers, M. A., Lecturer on Law of Wills, Executors and Administrators.

John D. Fleming, B. A., LL. B., Lecturer on Law of Insurance.

Lucius M. Cuthbert, M. A., LL. B., Lecturer on Conflict of Laws.

Frank E. Gove, B. A., LL. B., Lecturer on Code Pleading.

John H. Denison, B. A., Lecturer on Equity Jurisprudence, Pleading and Practice.

Ralph Talbot, B. A., Lecturer on Criminal Law and Procedure.

Charles D. Hayt, Lecturer on Law of Taxation.

Caesar A. Roberts, M. A., Lecturer on Colorado Civil Code.

Edward C. Mason, B. A., LL. B., Lecturer on Colorado Civil Code.

Eugene Wilder, Clerk of Practice Court.

Howard S. Robertson, Librarian.

Harry T. O'Connor, Librarian.

John W. Cummings, Secretary's Assistant.

PREPARATORY SCHOOL.

(One-third paid by University.)

Henry White Callahan, Ph. D., Headmaster; Instructor in History and Latin (Plus \$250.00)	\$ 916.66
Horace C. Hall, B. A., First Assistant and Instructor in Mathematics	333.33
Arthur L. Patton, B. S., Instructor in Physics and Chemistry	266.66
Edward W. Lazell, Instructor in Biology	100.00
Henry Houseley, Instructor in Music	64.98
Hermann Emch, Instructor in Drawing	100.00
George A. Carlson, B. Ped., Instructor in English	66.66
M. Hortense Whiteley, B. A., Instructor in Greek	266.66
Mary L. Stewart, B. A., Instructor in Latin and German	200.00
Margaret A. Doolittle, B. A., Instructor in History	66.66
Mary E. Elwell, Instructor in English	66.66
Bernice E. Autrey, Instructor in Algebra	33.33
R. T. Marshall, Janitor	184.00
	<hr/>
	\$2,665.60

OTHER EMPLOYEES.

Silas A. Crandall, Steward	\$ 480.00
George R. Moore, Engineer	840.00
William W. McCarter, Fireman	540.00
Celso Espinosa, Employee on grounds	480.00
Eleven student janitors	931.50
Stock room assistant, clerical work of Dean, and attendance committee, etc., estimated	300.00
Mrs. Mary C. Larson, care of rooms in Woodbury Hall and in Cottage No. 2	184.50
	<hr/>
	\$3,756.00

SUMMARY.

College of Liberal Arts (including officers of the University)	\$33,605.00
School of Applied Science	4,200.00
School of Medicine	4,500.00
School of Law	3,000.00
Preparatory School	2,665.60
Other employees	3,756.00
	<hr/>
Total	\$51,726.60

REPORT OF UNIVERSITY SECRETARY.

From September 1, 1898, to October 1, 1900.

Receipts.

Balance on hand, September 1, 1898	\$ 517.48
Tuitions, fees and sundry small receipts, 1898-1899	5,462.24
*Tuitions, fees and sundry small receipts, 1899-1900	10,893.89
	<hr/>
	\$16,873.61

Disbursements.

By cash to J. H. Nicholson, Treasurer, in September 1898 ..	\$ 2,500.00
By cash to J. H. Nicholson, Treasurer, 1898-1899	2,500.00
By cash to J. H. Nicholson, Treasurer, 1899-1900	10,900.00
By fees returned to students	492.95
Cash on hand, October 1, 1900	480.66
	<hr/>
	\$16,873.61

*By changing date of report from September 1 to October 1, the September fees for 1900 are included in this report.

Respectfully submitted,

OMAR E. GARWOOD,

Secretary.

REPORT OF TREASURER OF SCHOOL OF MEDICINE.

From October 1, 1898, to October 1, 1900.

Receipts.

Balance on hand Oct. 1, 1898	\$ 482.72
Fees collected from Oct. 1, 1898, to Oct. 1, 1900	3,943.67
Collected balance due on dental apparatus	350.00
Collected one year's interest on same	28.00
Receipts from Hospital from Feb. 1, 1899, to Oct. 1, 1900 ..	7,234.59
	<hr/>
	\$12,038.98

Disbursements.

Paid Treasurer of the Board of Regents	\$11,253.05
Due from University for bills paid	395.85
Balance on hand Oct. 1, 1900	390.08
	<hr/>
	\$12,038.98

Respectfully submitted,

L. M. GIFFIN,

Treasurer.

REPORT ON BUILDING FUND.

From October 7, 1898, to October 1, 1900.

Balance on hand October 7, 1898	\$ 3,000.00
City of Boulder	1,000.00
Proceeds of Notes	3,999.20
Boulder County	4,000.00
	<hr/>
	\$11,999.20
Warrants paid	\$ 7,776.03
Notes and interest paid	4,141.54
Balance transferred to General Fund	81.63
	<hr/>
	\$11,999.20

Entire amount drawn from Permanent Land Fund for buildings	\$36,658.81
Entire amount received from Boulder County and City of Boulder for Hospital Building	8,000.00
	<hr/>
	\$44,658.81

Entire amount expended for Chemistry Building, Medical Building, Engineering Building and Gymnasium	31,392.64
Entire amount expended for Hospital Building	13,042.20
Interest on notes, and balance transferred to General Fund	223.97
	<hr/>
	\$44,658.81

Respectfully submitted,

J. H. NICHOLSON,

Treasurer.

REPORT ON CITIZENS' LOAN FUND.

To October 1, 1900.

BOULDER SUBSCRIPTIONS PAID.

Name.	Average date. 1899.	Amount.
Henry Lippoldt	Sept. 9	\$ 100.00
Fred Burger, Sr.	Sept. 16	100.00
H. C. Holstein	Sept. 20	200.00
Joseph Bergheim	Sept. 22	300.00
Bromley & Williamson	Sept. 25	100.00
Mrs. L. A. S. Durward	Sept. 25	100.00
James H. Baker	Sept. 28	1,000.00

J. D. Mason	Sept. 28	50.00
Bliss & Holbrook	Sept. 30	100.00
W. W. Wolf	Sept. 30	100.00
Boulder Pub. Co.	Oct. 1	100.00
S. A. Giffin	Oct. 1	500.00
E. C. Lewis	Oct. 1	500.00
N. D. McKenzie	Oct. 1	200.00
George R. Williamson	Oct. 1	1,000.00
D. L. Wise	Oct. 1	100.00
Helen Beardsley	Oct. 2	100.00
John Gardiner	Oct. 2	500.00
W. B. Keeler & Sons	Oct. 2	200.00
John Leahy	Oct. 2	50.00
W. S. Lee	Oct. 2	100.00
John McInnis	Oct. 2	250.00
Mrs. A. St. Julian	Oct. 2	100.00
Fred White	Oct. 2	200.00
William Babcock	Oct. 3	100.00
Ed Monroe	Oct. 3	100.00
W. L. Seely	Oct. 3	300.00
Adam Weber	Oct. 3	100.00
Isaac T. Earl	Oct. 5	250.00
C. S. Palmer	Oct. 5	200.00
T. H. Fitzpatrick	Oct. 6	200.00
F. Jordinelli	Oct. 6	100.00
J. T. Atwood	Oct. 7	50.00
Albert A. Reed	Oct. 7	1,000.00
William Duane	Oct. 8	250.00
John H. Harbeck	Oct. 15	500.00
H. D. Harlow	Oct. 15	200.00
W. H. Allison	Oct. 16	500.00
A. J. Macky	Oct. 16	500.00
C. C. Ayer	Oct. 18	150.00
Ira M. DeLong	Oct. 18	400.00
H. O. Dodge	Oct. 18	250.00
J. A. MacLean	Oct. 18	250.00
McClure-White Mercantile Co.	Oct. 18	500.00
Francis Ramaley	Oct. 18	160.00
Maxwell & Greenman	Oct. 19	250.00
J. H. Nicholson	Oct. 25	300.00
Kate W. Poley	Oct. 26	100.00
Geo. W. Teal	Oct. 29	100.00

S. S. Downer	Nov. 3	250.00
J. R. Brackett	Nov. 4	250.00
Mary Rippon	Nov. 4	250.00
W. B. Stoddard	Nov. 4	250.00
Hannah C. Barker	Nov. 7	500.00
Hiskey & McNaughton	Nov. 12	500.00
Henry Fulton	Nov. 14	250.00
John W. Day	Nov. 15	100.00
P. J. Werley	Nov. 16	200.00
Francis Kennedy	Nov. 18	300.00
D. K. Sternberg	Nov. 20	100.00
O. H. Wangelin	Nov. 24	250.00
George H. Rowe	Nov. 25	100.00
Danforth & Ward	Nov. 28	250.00
Geo. F. Fonda	Nov. 29	500.00
Woollett-Brown Lumber Co.	Nov. 29	100.00
Charles T. Gilbert	Dec. 1	50.00
Elbert Greenman	Dec. 1	100.00
J. G. Trezise	Dec. 2	100.00
Cowie & Moorhead	Dec. 4	50.00
D. E. Dobbins	Dec. 5	100.00
Meyer Bros.	Dec. 5	50.00
G. G. O'Brien	Dec. 15	25.00
	1900.	
L. M. Giffin	Jan. 15	250.00
E. B. Queal	Jan. 18	100.00
F. B. R. Hellem	Feb. 1	250.00
Henry White Callahan	Sept. 14	249.98
George H. Cattermole	Sept. 25	100.00

Total paid\$18,434.98

Boulder subscriptions unpaid 1,925.00

Total Boulder subscriptions \$20,359.98

STATE SUBSCRIPTIONS PAID.

1900.

Pueblo Savings Bank	March 31	\$ 1,000.00
Moses Hallett	April 3	1,000.00
National State Bank, Boulder	April 4	2,125.00
W. Byrd Page	April 5	500.00

REGENTS' REPORT.

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First National Bank, Pueblo	April 7	3,000.00
D. R. Green	April 10	250.00
A. E. Reynolds	April 13	500.00
O. E. LeFevre	April 19	500.00
Geo. W. Baxter	April 27	500.00
First National Bank, Boulder	April 27	2,125.00
Eben Smith	May 2	10,000.00
Western National Bank, Pueblo	May 2	1,000.00
Colorado National Bank, Denver	May 8	4,000.00
Denver National Bank	May 8	4,000.00
First National Bank, Denver	May 8	4,000.00
Mercantile National Bank, Pueblo	June 4	1,000.00
J. F. Campion	June 8	2,500.00
J. W. Graham	July 6	1,000.00
"A Citizen"		5,000.00

Total paid	\$44,000.00
State subscriptions unpaid	6,000.00

Total state subscriptions	\$50,000.00
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Total subscriptions	\$70,359.98
Total paid	\$62,434.98

Total unpaid	\$ 7,925.00
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Respectfully submitted,

J. H. NICHOLSON,

Treasurer.

TREASURER'S REPORT.

From October 1, 1898, to October 1, 1900.

Receipts.

Cash on hand October 1, 1898	\$ 5,729.48
State Treasurer, General Fund, one-fifth mill tax	72,954.60
State Treasurer, Special Appropriation, 1897-1898	23,483.27
State Treasurer, Land Income	3,886.19
State Treasurer, Special Tax, one-tenth mill, 1893-1894	132.54
Receipts from Medical School and Hospital (Due from E. J. Temple, former Secretary of Board \$400)	10,853.05
Receipts from University Secretary	13,400.00
Premium on State Warrants	43.80
Proceeds of note	4,940.18

Balance from Building Fund	81.63
Citizens' Loan	62,434.98
	<hr/>
	\$197,939.72

Disbursements.

Warrants outstanding October 1, 1898	\$ 18,723.79
Paid on note	2,538.38
Warrants paid from October 1, 1898 to October 1, 1900 ..	159,284.45
Balance October 1, 1900	17,393.10
	<hr/>
	\$197,939.72

Respectfully submitted,

J. H. NICHOLSON,

Treasurer.

SECRETARY'S REPORT.

From October 1, 1898, to October 1, 1900.

Warrants issued in payment of expenses of the several Departments of the University during the biennial period, October 1st, 1898—October 1st, 1900:

College and School of Applied Science, instruction.....	\$ 74,983.40
School of Medicine, instruction, library, apparatus, hospital, etc. (Largely reimbursed by Medical tuitions and Hospital receipts)	20,140.01
School of Law, instruction, library, etc. (Partly reimbursed by tuitions)	7,628.09
Preparatory School, instruction and other expenses ...	8,261.40
Library, books, periodicals and supplies	2,290.69
Biology, books, apparatus and supplies	374.44
Chemistry, books, apparatus and supplies (Largely reimbursed by fees)	1,533.58
English, books	94.90
French, books	231.18
German, books	39.42
Greek, books	207.30
History and Political Science, books	348.84
Latin, books	142.22
Literature, books, etc.	99.47
Mathematics, books	89.81
Music, books	92.35
Philosophy, books	206.85
Psychology and Education, books, etc.	278.75

REGENTS' REPORT.

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Physics, books, apparatus and supplies	370.80
Civil Engineering, books, apparatus and supplies	473.02
Electrical Engineering, books, apparatus and supplies...	847.73
Regents, service and mileage	2,576.05
Buildings and Grounds, repairs, improvements, salaries of janitors, insurance, etc.	16,469.88
Furniture and Supplies	600.21
Printing, Stationery and Postage	3,701.26
Fuel and Light	6,984.71
Advertising (including visitation of schools and institutes, and lectures)	2,907.90
Unclassified	7,413.78

Total expenses for Period, except warrants drawn
on Building Fund\$159,388.04

Warrants issued, not paid by Oct. 1st, 1898\$ 4,991.96
Warrants issued, not paid by Oct. 1st, 1900 5,095.55

\$ 103.59

Warrants issued from Oct. 1st, 1898, to Oct. 1st, 1900... 159,388.04

Warrants, paid by Treasurer from Oct. 1st, 1898, to Oct.
1st, 1900\$159,284.45

Warrants drawn on Building Fund from Oct. 7th, 1898,
to Oct. 1st, 1900\$ 7,776.03

Respectfully submitted,

EDWARD J. MORATH,
Secretary of Board of Regents.

LIBRARIAN'S REPORT.

James H. Baker, President of the Board of Regents,
University of Colorado.

Dear Sir:—

I have the honor to present herewith my report on the Li-
brary, covering the period from October 1, 1898, to October 1, 1900.

ADDITIONS.

The total number of volumes accessioned and placed in the Li-
brary during the two years is 3381, derived from the following
sources:

Gifts (public documents)	535	
Gifts (miscellaneous)	1,031	1,566
	<hr/>	
Binding		485
Purchased		1,330
		<hr/>
Total accessions		3,381

DONATIONS.

Gifts have been received, entered, and acknowledged as follows:

Books	2,307
Pamphlets, College catalogues, etc.	1,418
Maps, etc.	18
	<hr/>
Total	3,743

BINDING.

Periodicals (completed volumes)	549
New books (issued in paper)	221
Dissertations, etc., (linen binding)	204
Rebound	139
Newspapers (July 1898 to June 1900)	16
	<hr/>
Total	1,129

SUMMARY.

Number of volumes reported October 1, 1898	18,495
Additions.	

By gifts (Government documents).....	535	
By gifts (miscellaneous)	1,031	
	<hr/>	
		1,566
By binding		485
By purchase		1,330
		<hr/>
		3,381
		<hr/>
Total		21,876

Deductions.

Cancelled (lost)	6	
Cancelled (dup. govt. docs. returned) ..	23	
	<hr/>	
		29
		<hr/>

Total number of volumes in Library October 1, 1900	21,847
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DONATIONS.

(Detailed Statement.)

	Books.	Pamp.	Maps.
American Bar Association	19		
Bulette, Dr. W. W., Pueblo, (Medical School) ..	231		

Bureau of South American republics	20		
Butsch, V., Boulder,	57		
Colorado Secretary of State	62	20	
Colorado Superintendent of Mines	2		
Colorado Superintendent of Schools	3	2	
Anonymous, Corpus Inscriptionum Latina- rum; Ephemeris Epigraphica—as a Memorial to Prof. Carl W. Belser, Ph. D., (Latin)	39		
Gardiner, Dr. John	280		
Gardiner, Dr. John, Wall map of Europe			1
Gardiner, Dr. John, annual subscription to "Annals of Botany;" "Revue General de Botanique."			
Farnsworth, Charles H.,	11	12	
Massachusetts Bureau of Labor	24	9	
Massachusetts Board of Insanity	1		
Massachusetts Railroad Commissioners	3		
Massachusetts Board of Education	22		
Michigan Superintendent of Schools	13		
Smithsonian Institution	17	14	
Stoddard, Dr. William B., annual subscrip- tion to "Journal of Society of Chemical Industry."			
United States (Supt. of docs.)	1,360	399	14
Wolff, Jospeh,	14		
Miscellaneous	129	962	3
Total	2,307	1,418	18

Respectfully yours,
ALFRED E. WHITAKER,
Librarian.

INVENTORY OF UNIVERSITY PROPERTY.

The following estimates, taken from inventories recently made, are presented as fair approximations:

GROUND.

Campus, fifty-two acres (estimated present value unim- proved)	\$ 26,800.00
Improvements, as fences, grading, roads, walks, pipes, drains, trees, lake, bridges	11,800.00
	<hr/>
	\$38,600.00

BUILDINGS.

(Approximate cost of each.)

Main Building	\$ 36,500.00
University Cottage	6,600.00
Medical Building	8,800.00
Cottage No. 1	8,400.00
Cottage No. 2	3,800.00
Anatomy Building	2,500.00
Woodbury Hall	24,500.00
Hale Scientific Building	47,500.00
Engineering Building and heating plant	17,100.00
Heating plant, boilers, pipes in ground, fan house	6,000.00
Observatory	200.00
Ice House	200.00
Stables and sheds	1,200.00
Chemistry Building	9,700.00
Gymnasium Building	5,700.00
Hospital, furnished	15,000.00

 \$193,700.00

FURNITURE, ETC.

Team, implements, tools, engineer's and carpenter's supplies, (value)	\$ 1,211.00
Gymnasium apparatus (cost)	500.00
Room furniture, as chairs, settees, desks, tables, movable cases, pictures, office furniture, dormitory and dining hall equipment, shades and janitor's supplies (value)	9,128.00

 \$ 10,839.00

LIBRARY.

Library (value)	\$ 37,000.00
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APPARATUS.

Biology	\$ 2,269.00
Chemistry	2,918.00
Civil Engineering	2,214.00
Comparative and English Literature	524.00
Electrical Engineering	4,154.00
German	30.00
Greek	336.00
History and Political Science	20.00
Hospital (furniture and instruments)	2,363.00
Latin	20.00

Mathematics	351.00
Medicine	4,271.00
Physics	6,929.00
Psychology	297.00

\$ 26,696.00

COLLECTIONS.

Geological and Mineralogical (value)	\$ 2,460.00
Art (cost)	1,800.00

\$ 4,260.00

SUMMARY.

Grounds	\$ 38,600.00
Buildings	193,700.00
Furniture, etc.	10,839.00
Library	37,000.00
Apparatus	26,696.00
Collections	4,260.00

\$311,095.00

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THE LIBRARY
OF THE
UNIVERSITY OF ILLINOIS

Thirteenth Biennial Report
OF THE
REGENTS
OF THE
UNIVERSITY OF COLORADO



Boulder, Colorado
October 1, 1902



UNIVERSITY OF COLORADO.

THIRTEENTH BIENNIAL REPORT OF THE REGENTS, 1900-1902.

To the State Superintendent of Public Instruction, and the Fourteenth General Assembly:

The Thirteenth Biennial Report, from October 1, 1900, to October 1, 1902, is herewith presented by the Regents.

DEPARTMENTS OF THE UNIVERSITY.

The departments of instruction in the UNIVERSITY OF COLORADO are comprehended under the following divisions:

I. COLLEGE OF LIBERAL ARTS:

Classical Course, leading to the degree B. A.

Philosophical Course, leading to the degree B. Ph.

Scientific Course, leading to the degree B. S.

II. GRADUATE COURSES, leading to the degrees M. A., M. S., and Ph. D.

III. COLORADO SCHOOL OF APPLIED SCIENCE:

Civil Engineering, leading to the degree B. S. (C. E.)

Electrical Engineering, leading to the degree B. S. (E. E.)

Mechanical Engineering, leading to the degree B. S. (M. E.)

IV. COLORADO SCHOOL OF MEDICINE.

V. COLORADO SCHOOL OF LAW.

VI. COLORADO STATE PREPARATORY SCHOOL. (Separate Organization, Grounds and Building. Conducted by the University.)

ATTENDANCE.

The subjoined table shows the growth in attendance during the past few years:

Years.	Univ. Students.	Prep. Students.	Total.
1891-2	66	103	169
1892-3	129	158	287
1893-4	159	146	305
1894-5	204	192	396
1895-6	267	242	509
1896-7	324	276	600
1897-8	337	273	610
1898-9	390	310	700
1899-00	433	356	789
1900-1	466	367	833
1901-2	510	352	862
1902-3	550 (estimated)	375 (estimated)	925

DEGREES CONFERRED.

In 1901 and 1902 one hundred and fifty-two degrees were conferred, as follows:

	1901.	1902.	Total.
College of Liberal Arts.....	43	33	76
Graduate Courses.....	6	9	15
Colorado School of Applied Science.....	5	8	13
Colorado School of Medicine.....	8	13	21
Colorado School of Law.....	12	14	26
Honorary Degrees.....		1	1
	<hr/> 74	<hr/> 78	<hr/> 152

The Colorado State Preparatory School graduated twenty-nine students in 1901 and thirty-seven in 1902, a total of sixty-six.

GRADUATES.

The register of the Graduates now shows the following figures:

College of Liberal Arts.....	249
Graduate Courses.....	43
Colorado School of Applied Science.....	34
Colorado School of Medicine.....	106
Colorado School of Law.....	82
Honorary Degrees.....	12
	<hr/> 526
Colorado State Preparatory School.....	379
	<hr/> 905

GRADUATE COURSES.

In 1900-1901 there were seventeen students in the Graduate Department: three working for Ph. D.; eight for M. A.; and six for M. S. In 1901-1902 there were twenty-two graduate students: three working for Ph. D.; twelve for M. A.; four for M. S.; and three not candidates for a degree. Higher degrees have been conferred upon fifteen candidates within the biennial period.

In 1901 the degree of M. A. was conferred upon—

Name.	Subject of Thesis.
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Frank Howard Clark,	"The Scope and the Efficiency of the Normal Schools of the United States."
Charles Densmore Curtis,	"The Attitude of Martial and Statius toward the Emperors of their Day."
William Wesley Hall,	"The Tragic Heroines of Racine."
Elmer Ellsworth Jones,	"The Emotions and the Change from the Quadrupedal to the Erect Position."

The degree of M. S. was conferred upon—

Lewis Irving Neikirk,	.....
Alwyn Charles Smith,	"Hyperbolic Curves of the Nth Order."

In 1902 the degree of M. A. was conferred upon—

Oscar Perry Akers,	"Singular Solutions of Differential Equations."
John Randolph Bell,	"The Administration of John Montgomery, Governor of the Colony of New York, 1728-1731, with a Preliminary Study of the New York Assembly, 1702-1731."
Lucinda Marie Garbarino,	"Legend and Myth in Sophocles."
David Carl Ring,	"The Anatomy of Cercocarpus Parvifolius."
George Ward Smith,	"The Demotic Composition of the Colony of New York."
Herbert Newell Wheeler,	"Some Plants from Sapinero, Gunnison County, Colorado;" "The Seed Coats of Cleome and Polanisia."

The degree of M. S. was conferred upon—

Harvey Carr,	"Survival Values of Play."
Hermann Emch,	"The Realization of Collineation in a Plane, by Linkages."
Charles Alfred Lory,	"The Effect of Jarring Upon Magnetic Hysteresis, Studied by Means of a New Direct-reading Instrument."

Four of the above graduate students received fellowships in the universities of the East—Pennsylvania, Cornell, Columbia and Chicago.

A Graduate Club, organized for scientific discussions, held monthly meetings during the past academic year.

The Secretaryship of the Graduate Faculty was made vacant by the resignation of Dr. Charles S. Palmer, who was elected last spring to the Presidency of the State School of Mines. The Regents have appointed in his place Dr. J. Raymond Brackett, Professor of Comparative and English Literature, who is responsible for organizing the work and recording the progress of the students.

COLLEGE OF LIBERAL ARTS.

Within the past two years the following appointments have been made in the College of Liberal Arts: Melanchthon F. Libby, Ph. D. (Clark), was appointed, September, 1901, to the Chair of Philosophy, made vacant by the death of Francis Kennedy, Ph. D., February 19, 1901. The position of Dean of Women, created in 1901, was filled in September of that year by the appointment of Margaret E. Stratton, M. A. (Oberlin). A department of Geology was instituted in 1901, and Nevin M. Fenneman, Ph. D. (Chicago), assumed his duties as Professor in January, 1902. The department of History and Political Science has been divided into the two departments of History, and Economics and Sociology. Professor Nichols is retained in the Chair of History, and in September, 1902, John B. Phillips, Ph. D. (Cornell), was made Professor of Economics and Sociology. John B. Ekeley, Ph. D. (Freiburg), fills the Chair of Chemistry, made vacant by the resignation in June, 1902, of Professor Charles Skeelee Palmer, Ph. D., to take the Presidency of the Colorado School of Mines. John P. Langs, B. A. (Columbia), takes the place, as Instructor in Music, of Frederick M. Lillebridge, M. A., who resigned in June, 1902, to accept another position. George Norlin, Ph. D., Professor of Greek, is given leave of absence this year to pursue research work in Europe. The Acting Professor is LaRue VanHook, B. A. (Michigan), formerly Fellow in the University of Chicago.

President Baker was granted a four-months' leave of absence, June to October, 1902, to travel and visit some universities abroad. During his absence Professor Ramaley, of the department of Biology, was Acting President.

The first volume of the "University of Colorado Studies" was issued January, 1902.

The Faculty has under discussion a reorganization of the college curriculum.

THE SCHOOL OF APPLIED SCIENCE.

The Engineering School has undergone very marked changes within the past Biennial period. The enrollment of students has almost doubled, the faculty has been strengthened, and the curriculum has been extended by the installation of a department of Mechanical Engineering.

The school sustained a severe loss in the death of Dean Fulton.* He had held the Deanship and the chair of civil engineering from the establishment of the school in 1893. Professor George H. Rowe, of the chair of electrical engineering, was appointed Dean of the School of Applied Science September, 1902, to fill the vacancy. Charles Derleth, Jr., B. S. and C. E. (Columbia), was appointed to the professorship of civil engineering.

H. Chester Crouch, M. E. (Cornell), has been appointed Assistant Professor of Mechanical Engineering, and is now in full charge of that department. A complete four-year course in mechanical engineering, leading to the degree of B. S. (M. E.), is now offered. In order to provide room for this department an addition to the engineering building was constructed in the summer of 1902, and the necessary equipment of forges, anvils, furnaces, etc., was installed. Additional equipment has also been purchased for the departments of electrical engineering and civil engineering.

Graduates of the School of Applied Science are uniformly successful in securing positions. The General Electric Company of Schenectady, N. Y., the American Bridge Company of Pittsburg, the Colorado Fuel and Iron Company, the Westinghouse Electric Company, the American Smelting and Refining Company, the Niagara Falls Electric Company, and several of the leading railroad systems of the country are employing graduates of this school in various capacities.

SCHOOL OF MEDICINE.

The University Hospital is now practically self-supporting. The clinics now offered by the Hospital and the medical dispensary are increasing in number and quality year by year. Each senior class arranges for regular visits to the leading hospitals in Denver, where special opportunities for observing clinics are secured by members of the Faculty.

*Henry Fulton, M. S., Dean of the School of Applied Science and Professor of Civil Engineering, died December 6, 1901.

A new motor-generator has been placed in the Medical Building, making it possible to give electrical treatment and to operate an X-ray machine.

The wisdom of making the admission standard equivalent to that of the other departments of the University has been demonstrated. The improved quality of preparation, as shown by the freshman classes of the past two years, has been gratifying. The tendency of medical students to take collegiate degrees or one or more years of collegiate training before beginning the work of the medical school is worthy of note.

The following changes have been made in the Faculty of the Medical School: Dr. Horace O. Dodge resigned the chair of *Materia Medica* and Therapeutics, and Dr. Charles F. Andrew has been appointed in his place; Dr. A. Stewart Lobingier resigned the chair of Surgery and Clinical Surgery, and Dr. Luman M. Giffin has been appointed to the vacancy. Dr. Oscar M. Gilbert has been made Lecturer on Anatomy. Dr. William H. Riley resigned the chair of Mental and Nervous Diseases, and Dr. Arthur McGugan has been appointed.

SCHOOL OF LAW.

In the death of Professor Murfree* the Law School suffered a severe loss. His administration of the office of Secretary was marked with great success. Under his management the department was thoroughly organized. Professor Albert A. Reed, LL.B., was appointed Secretary of the School. A familiarity with the history of the School, its methods and work, enabled Professor Reed to continue the administration of the affairs of the department without serious break. Mr. William H. Pease, a graduate of Toronto University, and of the Law School of our University, has been added to the faculty as a resident professor of law.

No change has been made in the system of study; it remains a conservative combination of lectures and text-books with the "case" method. The subjects of Pleading, Practice, Code of Civil Procedure, Conveyancing and Drafting Legal Instruments are receiving great emphasis.

The library has been enlarged by the addition of several sets of State Reports and many new text-books.

The tendency is to elevate the standard of preliminary scholastic work. This policy may prevent a large increase in numbers, but

*William L. Murfree, LL. B., Secretary of the Law School, and Professor of Law, died January 25, 1902.

should result in the graduation of students better qualified to enter the profession. The percentage of college-trained students is increasing.

The School is a member of the Association of American Law Schools.

PREPARATORY SCHOOL.

The Preparatory School is conducted as heretofore, the city of Boulder using the department for its High-School pupils and sharing the expense. It has been the policy of the University to perfect the details of the school rather than increase its numbers. The accommodations are not ample enough to justify an increased attendance. The University encourages the development of high schools in all towns of sufficient size throughout the State, that the demand for college preparation may be met near at home. The Preparatory School has grown in efficiency until it expresses the demand of the University in secondary work.

In the opinion of the Regents, the statute making it obligatory to maintain a Preparatory department, should be so modified as to leave the question to the option of the Regents.

BUILDINGS AND GROUNDS.

Since the last report some improvements have been made on the grounds in the way of grading and road building. A stone walk has been laid on Twelfth street as far as Cottage Number One. Trees have been planted in a number of places. Three arc lights have been placed on the campus and porch lights on all the buildings. Many minor repairs on buildings were made last summer. The various scientific departments have added a number of instrument cases to their equipment, and six large cases have been installed in the museum in the Hale Scientific building. The museum has been rearranged and everything placed in the best order for exhibition purposes.

The pipe line from the central heating plant to the principal buildings has been relaid. This improvement, together with a new boiler just installed, greatly increases the efficiency of the heating system.

A large athletic field has been laid out just east of the Medical building. This field is used in the fall for football and in the spring for baseball and track athletics.

An addition to the Engineering building, at an expense of about \$1,000.00, provides quarters for the department of Mechanical Engi-

neering. A complete rearrangement of the Anatomical building makes it more convenient than formerly. The lack of rooms for recitation purposes has been more apparent the last year than ever before. Nearly every room is used by more than one professor, and many of the rooms are badly crowded by the large classes.

The central portion of a new Library building, 65x115 feet, was begun in September, 1902. The building will be of gray brick with white sandstone trimmings. It will serve temporarily as a complete Library building.

RELATION TO THE HIGH SCHOOLS.

Since the last report several High Schools have been added to the "accredited" list, and many others are striving to attain the standard necessary for recognition. Graduates of the University are now found on the list of teachers in nearly all the High Schools of the State.

High-School Day at the University last May was celebrated in a noteworthy manner. About 1,200 High-School visitors were present. To the Faculty and student committees, the citizens who donated prizes for the events, and the High Schools co-operating, the University is indebted for the success of the day.

The announcement, here reproduced in part, will give an adequate idea of the plan and purpose of the occasion:

UNIVERSITY OF COLORADO.

HIGH-SCHOOL DAY.

The remarkable growth of interest in High-School Day, throughout the State, has warranted the University in making the day a permanent feature of its life. Last year, between five and six hundred members of High-School graduating classes visited the University. This year a much larger number is expected, as the University is arranging a program of events that should make the celebration more attractive than ever to both teachers and students of Colorado High Schools.

The date fixed for High-School Day, 1902, is Saturday, May 17th.

On Friday evening, May 16th, there will be held in the University auditorium the Inter-Scholastic Oratorical Contest, conducted under conditions prescribed below.

In the forenoon of High-School Day will be held the

High-School Conference, which should this year be of special interest to our High-School teachers, as the conference will be addressed by one of the prominent educators of the country.

In the afternoon will occur the State Inter-Scholastic Track Athletic Meet, whose success has already been assured by promises of co-operation from a number of High Schools.

To this event an admission fee will be charged to cover, in part, the great expense undertaken by the University in providing for the Meet.

A cordial invitation is extended to superintendents, principals and teachers of High Schools, and members of graduating classes, to be present this year. An invitation is also extended to other High-School students who care to take advantage of the special rates, to visit the University and enjoy the events of the day. High-School students visiting the University are advised to bring lunch baskets for a picnic on the University grounds.

GENERAL PROGRAM.

I. INTERSCHOLASTIC ORATORICAL CONTEST. University auditorium, Friday evening, May 16th, 8 o'clock. The conditions of the contest are as follows:

1. It is open to all accredited High Schools.
2. Preliminary contests are to be held in each High School contesting, the winner to be the representative from that school.
3. The winning orations, signed by fictitious names, shall be sent to the University not later than April 26th, addressed to George C. Taylor, Instructor in English, who will present them to the Committee of Award.
4. Out of these orations eight will be chosen for public delivery at the University.
5. The orations are not to consist of more than twelve hundred words.
6. A trophy will be awarded to the High School winning first place, to be retained by that school during the term of its championship.

It is hoped that all accredited High Schools of the State will take part in this contest, which ought, if entered into with spirit, to awaken a keen interest in public speaking in the various schools.

II. VISITING BUILDINGS. General survey of University grounds, buildings, laboratories, etc., by visiting High-School students, who will be helped by a Committee of Welcome, made up of University students. This may be done any time during the forenoon of High-School Day.

III. HIGH SCHOOL CONFERENCE. Address by E. Benjamin Andrews, LL.D., President of Nebraska University, 11 o'clock. University auditorium.

IV. INTERSCHOLASTIC TRACK ATHLETIC MEET, on Gamble Field, at 2 o'clock.

This Interscholastic Track Athletic Meet was added as a feature of High-School Day by the advice of a representative body of High-School men, who held a meeting at the University last January to discuss this matter. This meeting unanimously voted that a State Interscholastic Track Athletic Association, holding its annual meet at the University on High-School Day, would be mutually advantageous to the High Schools and the University; that it would serve to bring the High Schools and the University into still closer sympathy; that it would bring the track and field athletic interests of the High Schools under one organization; that it would, if properly managed, as in a number of other states where it has been tried successfully, stimulate interest in track and field sports and give an impetus to sound athletic enthusiasm in the High Schools.

ATHLETICS.

The general supervision of athletic sports in the University has been vested in a Board of Control, consisting of the Faculty Committee on Athletics, the President of the University Athletic Association and the Graduate Treasurer. This Board has entire control of all funds for athletic purposes and has the following powers: To decide upon all expenditures for athletic purposes; to fill vacancies in standing committees; to make by-laws for the government of the Board and standing committees; to delegate such of its power as it chooses to sub-committees; to decide upon all matters pertaining to athletic interests, such as the business of conventions, eligibility of players in athletic games, schedules of games and tournaments, selecting trainers, etc.

NEEDS.

The last General Assembly included in its special appropriation a sum for a library building. The Regents made a most careful study of plans for the proposed structure. The conclusion reached was that from this time the University must build for the future, and not waste money on temporary and inadequate structures. Another important conclusion was that it would be unwise if not impossible to include an auditorium in the building. They finally decided to erect the central portion of a building—the wings to be added in later years. The foundation of this portion, 65 by 115 feet, is now being laid. The sum provided by the General Assembly, \$40,000, is inadequate to finish even this portion; at least \$25,000 more will be needed.

A separate building to be used as an auditorium should be provided at once. The present room has not seating capacity for all the students. It is of prime importance to have a place for assembly of students and for audiences on public occasions. Such a building should cost not less than \$25,000.

The Chemistry Building should be completed. The west wing, erected in 1898, is now too small for the needs of the department of Chemistry. The cost of erecting the center and east wing would not be less than \$20,000.

The Engineering School has had a large growth during this biennial period, and an addition to the present building at a cost of \$10,000 will soon be needed.

In the near future a building for class rooms, already needed, will be absolutely required.

The heating plant must soon be reconstructed on a larger and more permanent plan.

Many improvements upon the grounds, such as grading, road-building and constructing a safe dam for the lake, are to be provided for.

The special appropriation for the next two years should, with the one-fifth mill levy, provide \$100,000 per year for the running expenses of the University in addition to the sum required for buildings. The growth of the University calls for larger expenditure in every direction, especially for instruction and equipment.

THE UNIVERSITY LOAN.

The University loan, authorized by the Governor in 1899, remains unpaid. It should, if possible, be the first care of the next General Assembly. We subjoin the report made upon this subject two years ago.

During the summer of 1899, the Regents, seeing that the University would be obliged to close its doors, unless heroic measures were adopted, held a special meeting in Denver, July 31, and, after an extended discussion of the whole problem in all its aspects, passed the following resolution:

"In considering the problem now facing the University of Colorado, arising from failure in the state's revenues to meet the appropriations for the various institutions, it appears that the members of the Twelfth General Assembly, representing the people of Colorado, almost unanimously by word and by act of appropriation showed, not only their appreciation of the present work of the University, but a desire and purpose to increase its usefulness; that closing of the University would be a calamity that would injure the State, directly or indirectly, in its every interest; that the sentiment of the State, as shown by the attitude of the press and by the public and private utterances of many influential citizens, is solidly against closing or even crippling the University; that the deficit in the state's revenue affects so many interests that it seems evident the whole question must at an early day come before a special session of the Legislature and ample provision be made to support our institutions and preserve the credit and good name of Colorado; that a number of public-spirited citizens are offering to take the risk of advancing funds for immediate needs in opening the University.

"In view of these facts, we, the Regents of the University of Colorado, hereby resolve to accept the aid proffered, and direct that the University open on September 11th as regularly announced. In accepting the funds advanced by citizens, we hereby agree to repay the same with interest at six per cent. per annum, if the appropriation made by the last General Assembly is realized, or, at such time as the General Assembly may make specific and adequate provision for the purpose.

Signed,

"The Board of Regents of the University of Colorado."

The Boulder Committee, which raised a loan of \$20,000 to warrant the opening of the University in September, 1899, was made up of the following gentlemen:

Mr. Albert A. Reed, Chairman,	Mr. Jay B. Hiskey,
Mr. George M. McClure,	Mr. William H. Allison,
Mr. John H. Nicholson,	Mr. Charles C. Bromley,
Mr. Isaac Berlin,	Hon. Edwin J. Temple,
Dr. William B. Stoddard,	Hon. Richard H. Whiteley,
Mr. Robert T. Fulton,	Mr. Neil D. McKenzie,
Judge Sylvester S. Downer,	Mr. James Cowie,
Mr. Lucius C. Paddock,	Mr. Warren C. Dyer,
Mr. John W. Day,	Mr. Thomas V. Wilson.

At a meeting of some prominent citizens held in Denver, September 20, 1899, "to consider matters of vital interest to the State University," it was voted unanimously to endeavor to secure an additional loan of \$50,000 for the support of the University during the remainder of the Biennial Period. The following Citizens' Committee to solicit funds was appointed:

General Irving Hale, Chairman,	Judge Owen E. LeFevre,
Mr. William H. Bryant,	Mr. Joseph K. Choate,
Hon. Hugh Butler,	John Chase, M. D.,
Hon. Willard Teller,	Mr. Gustave C. Bartels,
Governor Alva Adams,	Mr. Joel F. Vaile,
President Frank Trumbull,	Mr. James H. Blood,

The persevering and successful work done by both of these committees merits the highest appreciation.

The list of subscribers to the loan appears in the appendix, and reference is made to that list. Never in the annals of Colorado has a more public-spirited and generous act been recorded. It will go down in history that these subscribers saved the University of Colorado in a crisis of its affairs, brought about by no fault in the remotest way connected with the University, and incidentally saved Colorado from loss in material interest, credit and honor. It would be a lasting disgrace to the State, were there any failure to promptly repay the sums advanced.

Each subscriber to the loan, as the money is paid to the Treasurer, receives the following certificate of indebtedness:

THE UNIVERSITY OF COLORADO.

CERTIFICATE OF INDEBTEDNESS.

Boulder, Colorado, 1900.
 No..... \$.....

This is to Certify, That there is due to.....
or his legal representatives or
 assigns the sum of.....Dollars, for
 moneys advanced to the University of Colorado, for the sup-
 port and maintenance of the same during the remainder of
 the pending biennial period.

This Certificate is one of a series of Certificates of In-
 debtedness, amounting in the aggregate to the sum of Sev-
 enty Thousand Dollars, issued under and by authority of the
 following Executive Order, given on the Seventeenth day of

November, A. D. 1899, and is payable, with interest at the rate of Six per centum per annum, from the date hereof until paid, upon call of the Treasurer of the University of Colorado, at such time as the General Assembly of the State of Colorado may make specific and adequate provision for the payment of the same and funds under such provision become available.

.....of the University of Colorado.

By.....Treasurer.

EXECUTIVE ORDER.

WHEREAS, The Twelfth General Assembly, by an Act, approved April 19, 1899, appropriated the sum of One Hundred and Ten Thousand Dollars for the maintenance, and the payment of the salaries of, the officers and employes of the University of Colorado, for the years 1899 and 1900, which said appropriation belongs to what is known as appropriations of the third class, and for the payment of which there are at present no funds available in the hands of the treasurer; and,

WHEREAS, The needs of said University of Colorado are of great consequent urgency, so that the said institution may not be compelled to suspend and close for the want of available funds to maintain the same.

Now, THEREFORE, It is declared that an emergency concerning said institution exists, as is contemplated in and by Section 4112, Mills' Annotated Statutes; WHEREFORE, I, Charles S. Thomas, Governor of the State of Colorado, by virtue of the authority vested in me, do hereby authorize the contraction of an indebtedness for the remainder of the pending fiscal period, not to exceed the sum of \$70,000, which, in my judgment, is absolutely necessary for the maintenance and support of the said University of Colorado until such time as the General Assembly shall meet, and I do further declare this Executive Order to be in force as of the 1st day of September, 1899.

Witness my hand and the seal of this Office at Denver, this 17th day of November, A. D. 1899.

CHARLES S. THOMAS,
Governor.

RESOLUTION OF THE REGENTS OF THE UNIVERSITY OF COLORADO.

In accepting the funds advanced by citizens, we hereby agree to repay the same with interest at Six per cent. per annum, if the appropriation made by the last General Assembly is realized, or, at such time as the General Assembly may make specific and adequate provision for the purpose.

GIFTS.

Previous reports have recorded gifts valued at \$45,805.00. Gifts during the past two years are as follows:

Mrs. Maude C. Gardiner, Boulder, two microtomes; instruments (Biology)	\$ 45.00
Mrs. William Duane, Boulder, three mounted butterflies (Biology)	5.00
Dr. Albert L. Bennett, Denver, six Chinese idols (Museum) ..	75.00
Captain Alonzo Coan, Boulder, British fossils (Museum) ..	15.00
Judge Junius Henderson, Boulder, cretaceous fossils (Museum)	1.00
T. J. Sipple, Boulder, cretaceous fossils (Museum)	5.00
Mrs. Alice I. Fulton, Boulder, Colorado ores (Museum)	2.00
Professor William Duane, Boulder, North Carolina minerals (Museum)	5.00
Members of University faculties and students, two hundred specimens of local rocks (Museum)	50.00
R. S. McCaffery, San Pedro, New Mexico, metal specimens (Civil Engineering)	10.00
W. H. Burr, New York, and Charles Derleth, Jr., Boulder, blue prints of Kings Bridge bridge, City Island bridge and foundations (Civil Engineering)	43.00
General Electric Company, Schenectady, N. Y., photographs (Civil Engineering)	200.00
Union Pacific R. R., Colorado Midland R. R., Colorado & Southern R. R., Chicago, Burlington & Quincy R. R., photographs (Civil Engineering)	
Dr. D. C. Brown, Aspen, mine model used in mine litigation (School of Law)	
William T. Hughes, Denver, Law of Evidence, edition of 1756, formerly of the library of William Blackstone (School of Law)	

Library gifts; also reported on page 30:

Books. Pamp. Maps.

American Bar Association.....	2	
Baker, Dr. James H.....	26	
College catalogues, etc.....	30	817
Colorado Attorney General.....	18	
Colorado Bureau of Mines.....	1	4
Colorado Secretary of State.....	18	
Colorado Supt. of Public Instruc.....	3	6

	Books.	Pamp.	Maps.
Dennet, Dr. I. C.....	129		
Denver Public Library.....	19		
Duane, Dr. William.....	11		
Fulton, Mrs. Alice I.....	23		
Gardiner, Dr. John.....	23		
Gardiner, Mrs. Maude C.....	6		
Gardiner, Mrs. Maude C., annual sub- scription to "Annals of Botany," "Revue Général de Botanique" ..			
Hughes, W. T., Denver.....	25		
Kennedy, Dr. Francis.....	102	46	
McLean, Dr. James A.....	10		
Massachusetts Board of Insanity....	2		
Massachusetts Bureau of Labor.....	5		
Massachusetts Bureau of Statistics..	7		
Massachusetts Ry. Commissioners...	2		
Michigan Supt. of Public Instruction.	5		
Reed, Calvin. E.....	10		
Rowland, Capt. E.....	11		
Smithsonian Institution	33	9	
Stoddard, Dr. Wm. B., annual sub- scription to "Journal of Society of Chemical Industry".....			
Stonaker, C. L.....	6		
Thomas, Rev. J. C.....	16		
Titcomb, J. L., Denver.....	17		
U. S. (Supt. of Docs. & Depts.)	462	258	19
Walker, Dr. Henry H.....	16		
W. C. T. U. (Dup. Pub. Docs.)	157		
	<hr/>	<hr/>	<hr/>
	1,195	1,140	19
Miscellaneous	197	251	4
	<hr/>	<hr/>	<hr/>
Total.....	1,392	1,391	23
Total value of library gifts.....	\$300.00		
Total value of gifts 1900-1902.....	756.00		
<hr/>			
Gifts previous to 1896.....	\$27,207.00		
Gifts, 1896-1898	11,556.00		
Gifts, 1898-1900	7,042.00		
Gifts, 1900-1902	756.00		
Total.....	<hr/> \$46,561.00		

REPORTS SUBMITTED.

We submit herewith the pay roll of the University, Report of the University Secretary, Report of the Treasurer of the Medical School, Report on Citizens' Loan Fund, Treasurer's Report, Secretary's Report, Librarian's Report, Inventory of Property.

Respectfully submitted,

OSCAR J. PFEIFFER,
WILL J. ORANGE,
HAROLD D. THOMPSON,
DAVID M. RICHARDS,
WILLIAM H. BRYANT,
FRANK E. KENDRICK,
Board of Regents.

JAMES H. BAKER,
President.

EDWARD J. MORATH,
Secretary.

APPENDIX.

PAY ROLL OF THE STATE UNIVERSITY.

(Including Fixed Appropriations for the Law and Medical Schools).

James H. Baker, M. A., LL. D., President.....	\$ 4,500.00
Edward J. Morath, Secretary Board of Regents.....	360.00

COLLEGE OF LIBERAL ARTS.

Fred B. R. Hellems, Ph. D., Dean, Professor of Latin.....	\$ 2,100.00
Mary Rippon, Professor of the German Language and Literature	1,800.00
J. Raymond Brackett, Ph. D., Secretary of the Graduate Faculty; Professor of Comparative and English Literature	2,200.00
Ira M. DeLong, M. A., Professor of Mathematics.....	2,200.00
Arthur Allin, Ph. D., Professor of Psychology and Education	2,000.00
Charles C. Ayer, Ph. D., Professor of Romance Languages..	2,000.00
William Duane, Ph. D., Professor of Physics.....	2,000.00
George Norlin, Ph. D., Professor of Greek.....	1,900.00
LaRue Van Hook, B. A., Acting Professor of Greek.....	—
Francis Ramaley, Ph. D., Professor of Biology.....	1,900.00
Walter H. Nichols, M. A., Professor of History (part time)	500.00
Nevin M. Fenneman, Ph. D., Professor of Geology.....	1,700.00
Melanchthon F. Libby, Ph. D., Professor of Philosophy....	1,400.00
John B. Phillips, Ph. D., Professor of Economics and Sociology	1,600.00
John B. Ekeley, Ph. D., Professor of Chemistry.....	1,800.00
Arnold Emch, Ph. D., Assistant Professor of Pure and Applied Mathematics	1,200.00
Margaret E. Stratton, M. A., Dean of Women.....	900.00
Fordyce P. Cleaves, M. A., Instructor in Oratory and Physical Training	500.00
George C. Taylor, M. A., Instructor in English.....	1,000.00
John P. Langs, B. A., Instructor in Music.....	600.00
Hortense Roberts, Assistant in Latin.....	200.00

Wilhelmina C. Hinkhouse, B. S., Assistant in German.....	\$ 200.00
John J. Browne, B. A., Assistant in Mathematics.....	400.00
Edna E. Voight, Assistant in Mathematics.....	50.00
Daniel P. Taylor, B. A., Assistant in Pedagogy.....	200.00
Rosetta G. Bell, B. A., Assistant in Romance Languages...	100.00
Judson R. West, Assistant in Physics.....	200.00
William M. Parker, Assistant in Physics.....	100.00
Lucinda M. Garbarino, M. A., Assistant in Greek.....	100.00
Chancey Juday, M. A., Assistant in Biology.....	300.00
John W. Needles, B. A., Assistant in Chemistry.....	150.00
William S. Cunningham, Assistant in Chemistry.....	150.00
Jeanne Coulter, Assistant in English.....	100.00

Alfred E. Whitaker, M. A., Librarian.....	1,600.00
Hanson T. Parlin, Assistant in Library.....	300.00
Omar E. Garwood, Ph. B., Secretary.....	1,200.00
Harry J. Kesner, Assistant Secretary.....	135.00
Fritz C. Mors, Director of Gymnasium.....	180.00

\$39,825.00

SCHOOL OF APPLIED SCIENCE.

George H. Rowe, B. S., Dean; Professor of Electrical Engineering	\$ 2,000.00
Charles Derleth, Jr., B. S. and C. E., Professor of Civil Engineering	2,000.00
Arnold Emch, Ph. D., Assistant Professor of Pure and Applied Mathematics. (Salary noted elsewhere.)	
H. Chester Crouch, M. E., Assistant Professor of Mechanical Engineering	1,200.00
George R. Moore, Instructor in Engineering Shop. (Salary noted elsewhere.)	
Jerome H. Fertig, Assistant in Civil Engineering.....	100.00
John C. Fowler, Assistant in Civil Engineering.	

\$ 5,300.00

The remaining work of the School of Applied Science is done by professors in the College of Liberal Arts.

SCHOOL OF MEDICINE.

(The Hospital employees are not included in the following list).
 Appropriation for expenses of Medical School, including
 salaries \$4,500.00

Luman M. Giffin, M. D., Dean; Professor of Surgery.

John Chase, B. A., M. D., Professor of Ophthalmology and
 Otology.

Thomas E. Taylor, B. A., M. D., Professor of Obstetrics.

William B. Craig, M. D., Professor of Principles of Surgery
 and Pelvo-Abdominal Surgery.

Emley B. Queal, M. D., Professor of Physiology.

Eugene H. Robertson, Ph. M., M. D., Professor of Pathology
 and Bacteriology.

George H. Cattermole, M. D., Professor of Diseases of
 Children and Clinical Medicine.

Frank E. Waxham, M. D., Professor of Medicine, Clinical
 Medicine, Laryngology and Rhinology.

Francis Ramaley, Ph. D., Professor of Histology.

Charles Fisher Andrew, M. D., Professor of Materia Medica
 and Therapeutics, and Assistant to the Chair of Medi-
 cine.

Charles S. Elder, M. D., Professor of Gynecology and Ab-
 dominal Surgery.

Newton Wiest, M. D., Professor of Diseases of the Skin.

John B. Ekeley, Ph. D., Professor of Chemistry.

Arthur McGugan, B. Sc., M. D., Professor of Psychiatry and
 Nervous Diseases.

Lafayette Z. Coman, M. D., Lecturer on Minor Surgery and
 Bandaging.

Willard J. White, M. A., M. D., Lecturer on Hygiene and
 Medical Jurisprudence.

Oscar M. Gilbert, M. D., Lecturer on Anatomy and Demon-
 strator of Anatomy.

Robert J. Wells, Assistant in Chemistry.

Walter W. Reed, M. D., Assistant to the Chair of Obstet-
 rics and Instructor in Pharmacognosy.

Dessie B. Robertson, D. D. S., D. D. Sc., Assistant in Bacte-
 riology and Pathology.

John A. Russell, M. D., Laboratory Instructor in Minor
 Surgery and Bandaging.

Chancey Juday, M. A., Assistant in Histology.

Martin E. Miles, M. D., Assistant to the chair of Anatomy and the chair of Psychiatry and Nervous Diseases.

SCHOOL OF LAW.

Appropriation for expenses of Law School, including salaries \$3,000.00

Moses Hallett, LL. D., Dean; Professor of American Constitutional Law.

Albert A. Reed, LL. B., Secretary; Professor of Law.

Charles M. Campbell, P. B., B. C. L., Professor of Law.

Calvin E. Reed, LL. B., Professor of Law.

William H. Bryant, B. S., LL. B., Professor of Law.

Robert Given, B. A., Professor of Law.

Thomas M. Robinson, Professor of Practice and Judge of Practice Court.

Walter H. Nichols, M. A., Professor of History.

Edwin Van Cise, Professor of Law.

William H. Pease, B. A., LL. B., Professor of Law.

Hugh Butler, Lecturer on Common Law Pleading.

Luther M. Goddard, LL. B., Lecturer on Law of Patents, Copyrights and Trademarks.

Robert S. Morrison, Lecturer on Law of Mines and Mining.

John Campbell, M. A., LL. B., Lecturer on Law of Private and Municipal Corporations.

Charles S. Thomas, LL. B., Lecturer on Law of Evidence.

Henry T. Rogers, M. A., Lecturer on Law of Corporations.

John D. Fleming, B. A., LL. B., Lecturer on Law of Insurance.

Lucius M. Cuthbert, M. A., LL. B., Lecturer on Conflict of Laws.

John A. Riner, LL. B., Lecturer on International Law.

Platt Rogers, LL. B., Lecturer on Law of Trusts and Fiduciary Relations.

John H. Denison, B. A., Lecturer on Equity Jurisprudence, Pleading and Practice.

Ralph Talbot, B. A., Lecturer on Criminal Law and Procedure.

Charles D. Hayt, Lecturer on Law of Taxation.

Cæsar A. Roberts, M. A., Lecturer on Colorado Civil Code.

Arthur McGugan, B. Sc., M. D., Lecturer on Mental Alienation.

Willard J. White, M. A., M. D., Lecturer on Medical Jurisprudence.

Eugene Wilder, Clerk of Practice Court.

Ab H. Romans, B. Ped., Librarian.

Charles J. O'Connor, B. Ped., Librarian.

Frances Davy, Secretary.

PREPARATORY SCHOOL.

(One-third paid by University.)

Henry White Callahan, Ph. D., Headmaster; Instructor in History and Latin (Plus \$250,000)	\$ 916.66
Horace C. Hall, B. A., First Assistant and Instructor in Mathematics	400.00
Arthur L. Patton, B. S., Instructor in Physics and Chemistry	300.00
Ora S. Fowler, B. S., Instructor in Biology.....	100.00
John P. Langs, B. A., Instructor in Music.....	66.66
Samuel J. Pease, B. A., Instructor in History.....	66.66
Lemuel F. Parton, Instructor in English.....	66.66
Anna M. Grant, B. A., Instructor in Greek and Latin....	200.00
Carrie E. Orton, B. A., Instructor in Latin and German..	166.66
Maud Elden, B. A., Instructor in Mathematics.....	83.33
Matilda Krebs, B. A., Instructor in English.....	116.66
Isabel Swarthout, Instructor in Drawing.....	100.00
R. T. Marshall, Janitor.....	184.00
<hr/>	
	\$2,767.29

OTHER EMPLOYEES.

Silas A. Crandall, Steward.....	\$ 600.00
George R. Moore, Engineer.....	840.00
William W. McCarter, Fireman.....	540.00
Celso Espinosa, Emloye on Grounds.....	480.00
Albert Pomeroy, Janitor Main Building.....	360.00
Eight Student Janitors.....	715.50
Edward J. Mannix, Clerk of Attendance Committee.....	54.00
Craig M. Bouton, Stock Room Assistant.....	180.00
Christina Johnson, care of rooms in Woodbury Hall and in cottage Number 2 (estimated)	184.50
<hr/>	
	\$ 3,954.00

SUMMARY.

College of Liberal Arts (including officers of the University)	\$39,825.00
School of Applied Science.....	5,300.00
School of Medicine.....	4,500.00
School of Law.....	3,000.00
Preparatory School	2,767.29
Other employees	3,954.00
<hr/>	
Total.....	\$59,346.29

REPORT OF UNIVERSITY SECRETARY.

From October 1, 1900, to October 1, 1902.

RECEIPTS.

Balance on hand, October 1, 1900.....	\$ 480.66
Tuitions, fees and sundry small receipts, 1900-1901.....	9,761.85
Tuitions, fees and sundry small receipts, 1901-1902.....	10,581.00
<hr/>	
	\$20,823.51

DISBURSEMENTS.

By cash paid to University Treasurer.....	\$19,500.00
By fees returned to students.....	624.40
Balance on hand, October 1, 1902.....	699.11
<hr/>	
	\$20,823.51

Respectfully submitted,

OMAR E. GARWOOD,
Secretary.

REPORT OF TREASURER OF SCHOOL OF MEDICINE.

From October 1, 1900, to October 1, 1902.

RECEIPTS.

Balance on hand, October 1, 1900.....	\$ 390.08
Fees collected from Oct. 1, 1900, to Oct. 1, 1902.....	4,264.65
Hospital receipts from Oct. 1, 1900, to Oct. 1, 1902.....	8,892.65
From University for bills due, Oct. 1, 1900.....	395.85
<hr/>	
	\$13,943.23

DISBURSEMENTS.

Paid Treasurer of the Board of Regents.....	\$12,976.60
Due from University for bills paid.....	358.46
Balance on hand October 1, 1902.....	608.17

\$13,943.23

Respectfully submitted,

L. M. GIFFIN,
Treasurer.

REPORT ON CITIZENS' LOAN FUND.

To October 1, 1900.

BOULDER SUBSCRIPTIONS PAID.

Name.	1899.	Amount.
	Average date.	
Henry Lippoldt	Sept. 9	\$ 100.00
Fred Burger, Sr.....	Sept. 16	100.00
H. C. Holstein.....	Sept. 20	200.00
Joseph Bergheim	Sept. 22	300.00
Bromley & Williamson.....	Sept. 25	100.00
Mrs. L. A. S. Durward.....	Sept. 25	100.00
James H. Baker.....	Sept. 28	1,000.00
J. D. Mason.....	Sept. 28	50.00
Bliss & Holbrook.....	Sept. 30	100.00
W. W. Wolf.....	Sept. 30	100.00
Boulder Pub. Co.....	Oct. 1	100.00
S. A. Giffin.....	Oct. 1	500.00
E. C. Lewis.....	Oct. 1	500.00
N. D. McKenzie.....	Oct. 1	200.00
George R. Williamson.....	Oct. 1	1,000.00
D. L. Wise.....	Oct. 1	100.00
Helen Beardsley	Oct. 2	100.00
John Gardiner	Oct. 2	500.00
W. B. Keeler & Sons.....	Oct. 2	200.00
John Leahy	Oct. 2	50.00
W. S. Lee.....	Oct. 2	100.00
John McInnis	Oct. 2	250.00
Mrs. A. St. Julian.....	Oct. 2	100.00
Fred White	Oct. 2	200.00
William Babcock	Oct. 3	100.00
Ed Monroe	Oct. 3	100.00

Name.	Average date.	Amount.
W. L. Seely.....	Oct. 3	\$ 300.00
Adam Weber	Oct. 3	100.00
Isaac T. Earl.....	Oct. 5	250.00
C. S. Palmer.....	Oct. 5	200.00
T. H. Fitzpatrick.....	Oct. 6	200.00
F. Jordinelli	Oct. 6	100.00
J. T. Atwood.....	Oct. 7	50.00
Albert A. Reed.....	Oct. 7	1,000.00
William Duane	Oct. 8	250.00
John H. Harbeck.....	Oct. 15	500.00
H. D. Harlow.....	Oct. 15	200.00
W. H. Allison.....	Oct. 16	500.00
A. J. Macky.....	Oct. 16	500.00
C. C. Ayer.....	Oct. 18	150.00
Ira M. DeLong.....	Oct. 18	400.00
H. O. Dodge.....	Oct. 18	250.00
J. A. MacLean.....	Oct. 18	250.00
McClure-White Mercantile Co.....	Oct. 18	500.00
Francis Ramaley	Oct. 18	160.00
Maxwell & Greenman.....	Oct. 19	250.00
J. H. Nicholson.....	Oct. 25	300.00
Kate W. Poley.....	Oct. 26	100.00
George W. Teal.....	Oct. 29	100.00
S. S. Downer.....	Nov. 3	250.00
J. R. Brackett.....	Nov. 4	250.00
Mary Rippon	Nov. 4	250.00
W. B. Stoddard.....	Nov. 4	250.00
Hannah C. Barker.....	Nov. 7	500.00
Hiskey & McNaughton.....	Nov. 12	500.00
Henry Fulton	Nov. 14	250.00
John W. Day.....	Nov. 15	100.00
P. J. Werley.....	Nov. 16	200.00
Francis Kennedy	Nov. 18	300.00
D .K. Sternberg.....	Nov. 20	100.00
O. H. Wangelin.....	Nov. 24	250.00
George H. Rowe.....	Nov. 25	100.00
Danforth & Ward.....	Nov. 28	250.00
George F. Fonda.....	Nov. 29	500.00
Woclett-Brown Lumber Co.....	Nov. 29	100.00
Charles T. Gilbert.....	Dec. 1	50.00
Elbert Greenman	Dec. 1	100.00
J. G. Trezise.....	Dec. 2	100.00

Name.	Average date.	Amount.
Cowie & Moorhead.....	Dec. 4	\$ 50.00
D. E. Dobbins.....	Dec. 5	100.00
Meyer Bros.	Dec. 5	50.00
G. G. O'Brien.....	Dec. 15	25.00
	1900.	
L. M. Giffin.....	Jan. 15	250.00
E. B. Queal.....	Jan. 18	100.00
F. B. R. Hellemes.....	Feb. 1	250.00
Henry White Callahan.....	Sept. 14	249.98
George H. Cattermole.....	Sept. 25	100.00

Total paid.....\$18,434.98

Boulder subscriptions unpaid..... 1,925.00

Total Boulder subscriptions.....\$20,359.98

STATE SUBSCRIPTIONS PAID.

	1900.	
Pueblo Savings Bank.....	March 31	\$1,000.00
Moses Hallett	April 3	1,000.00
National State Bank, Boulder.....	April 4	2,125.00
W. Byrd Page.....	April 5	500.00
First National Bank, Pueblo.....	April 7	3,000.00
D. R. Green.....	April 10	250.00
A. E. Reynolds.....	April 13	500.00
O. E. LeFevre.....	April 19	500.00
Geo. W. Baxter.....	April 27	500.00
First National Bank, Boulder.....	April 27	2,125.00
Eben Smith	May 2	10,000.00
Western National Bank, Pueblo.....	May 2	1,000.00
Colorado National Bank, Denver.....	May 8	4,000.00
Denver National Bank.....	May 8	4,000.00
First National Bank, Denver.....	May 8	4,000.00
Mercantile National Bank, Pueblo.....	June 4	1,000.00
J. F. Campion.....	June 8	2,500.00
J. W. Graham.....	July 6	1,000.00
"A Citizen"		5,000.00

Total paid\$44,000.00

State subscriptions unpaid..... 6,000.00

Total State subscriptions.....\$50,000.00

Total subscriptions	\$70,359.98
Total paid	\$62,434.98

Total unpaid	\$ 7,925.00
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Respectfully submitted,

J. H. NICHOLSON,
Treasurer.

The receipts as noted above were accounted for in the Treasurer's report, October 1, 1900.

RECEIPTS SINCE OCTOBER 1, 1900.

(Included in the Treasurer's Report of October 1, 1902.)

Meyer Bros.	Oct. 4, 1900	\$ 50.00
A. E. Reynolds.....	Dec. 7, 1900	2,000.00

Total.....	\$ 2,050.00
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Respectfully submitted,

W. S. BELLMAN,
Treasurer.

TREASURER'S REPORT.

From October 1, 1900, to October 1, 1902.

RECEIPTS.

Cash on hand October 1, 1900.....	\$ 17,393.10
State Treasurer, General Fund, one-fifth mill tax.....	104,268.70
State Treasurer, Special Appropriation.....	80,408.43
State Treasurer, Land Income.....	4,887.28
Receipts from Medical School and Hospital.....	12,976.60
Receipts from University Secretary.....	19,500.00
E. J. Temple (Still due \$200.00).....	200.00
Day and Henry (Amount returned acct. of error in bill) .	100.00
Meyer Bros., Loan Fund.....	50.00
A. E. Reynolds, Loan Fund.....	2,000.00

\$241,784.11

DISBURSEMENTS.

Warrants paid from October 1, 1900, to October 1, 1902...	\$187,392.29
Balance on note and interest.....	2,609.05
Cash on hand, General account	\$46,782.77
Special account	5,000.00— 51,782.77
	<hr/>
	\$241,784.11

Respectfully submitted,

W. S. BELLMAN,

Treasurer.

SECRETARY'S REPORT.

From October 1, 1900, to October 1, 1902.

Warrants issued in payment of expenses of the several Departments of the University during the biennial period October 1, 1900, to October 1, 1902:

College and School of Applied Science—Instruction and expense	\$ 79,786.81
School of Medicine—Instruction, apparatus, hospital and other expenses (largely reimbursed by Medical tuitions and Hospital receipts)	22,456.90
School of Law—Instruction, library and other expenses (partly reimbursed by tuitions)	8,679.85
Preparatory School—Instruction and other expenses.....	6,992.99
Civil Engineering—Books, apparatus and supplies.....	2,318.21
Electrical Engineering—Books, apparatus and supplies...	1,445.48
Mechanical Engineering—Apparatus and supplies.....	327.99
Library—Books, periodicals, binding and supplies.....	3,481.60
Advertising—(Including visitation of schools and institutes, and lectures).....	3,889.88
Buildings and Grounds—Repairs, improvements, salaries of janitors, insurance, etc.....	30,204.84
Fuel and Light.....	6,685.21
Furniture and Supplies.....	2,281.22
Printing, Postage and Stationery.....	4,777.52
Regents—Service and mileage.....	4,930.35
Biology—Books, apparatus and supplies.....	1,050.52
Chemistry—Books, apparatus and supplies.....	1,963.47
English—Books	61.08
Geology—Books, apparatus and supplies.....	350.87
German—Books	94.12

Greek—Books	\$ 375.17
History and Political Science—Books.....	59.45
Latin—Books and supplies.....	128.73
Literature—Books and supplies.....	99.11
Mathematics—Books	431.63
Philosophy—Books, apparatus and supplies.....	145.68
Physics—Apparatus and supplies.....	562.89
Psychology and Ed.—Books, apparatus and supplies.....	436.00
Romance Languages—Books	177.05
Unclassified	5,327.38

Total.....	\$189,522.00
Refunded—Day & Henry.....	100.00

Total expenses for Biennial Period.....\$189,422.00

Warrants issued, not paid by October 1, 1900.....	\$ 5,095.55
Warrants issued, not paid by October 1, 1902.....	7,225.26

\$ 2,129.71

Warrants issued from October 1, 1900, to October 1, 1902..\$189,522.00

Warrants paid by Treasurer from October 1, 1900, to October 1, 1902.....\$187,392.29

Respectfully submitted,

EDWARD J. MORATH,

Secretary Board of Regents.

LIBRARIAN'S REPORT.

James H. Baker, President of the Board of Regents, University of Colorado:

DEAR SIR—I have the honor to present herewith my report on the Library, covering the period from October 1, 1900, to October 1, 1902.

ADDITIONS.

The total number of volumes accessioned and placed in the Library during the two years is 3,688, derived from various sources, as follows:

Gifts (U. S. Publications)	323	
Gifts (Miscellaneous)	892	
		<hr/>
Total gifts	1,215	
Binding	703	
Purchased	1,770	
		<hr/>
Total accessions	3,688	

DONATIONS.

Gifts have been received, entered, and acknowledged as follows:

Books	1,392
Pamphlets, College catalogues, etc.	1,391
Maps, charts, etc.	23
	<hr/>
Total	2,806

Donations are shown in detail on page 15.

BINDING.

Periodicals (completed volumes)	597
New books (issued in paper)	251
Rebound	65
Newspapers	26
	<hr/>
Total	939

SUMMARY.

Number of volumes reported October 1, 1900.		21,847
Additions—		
By gift (U. S. Publications)	323	
By gift (Miscellaneous)	892	
	<hr/>	
Total by gift	1,215	
By binding	703	
By purchase	1,770	
	<hr/>	3,688
		<hr/>
Total		25,535
Deductions—		
Cancelled (lost and worn out)	17	
Less found and returned	13	
	<hr/>	
Total deduction		4

Total number of volumes in Library October
1, 1902..... 25,531

Respectfully yours,

ALFRED E. WHITAKER,
Librarian.

INVENTORY OF UNIVERSITY PROPERTY.

The following estimates, taken from inventories recently made,
are presented as fair approximations:

GROUNDS.

Campus, fifty-two acres (estimated present value unimproved)	\$26,800.00
Improvements, as fences, grading, roads, walks, pipes, drains, trees, lake, bridges, athletic field.....	18,800.00
	<hr/>
	\$45,600.00

BUILDINGS.

(Approximate cost of each.)

Main Building.....	\$ 36,500.00
University Cottage.....	6,600.00
Medical Building.....	8,800.00
Cottage No. 1.....	8,400.00
Cottage No. 2.....	3,800.00
Anatomy Building.....	2,500.00
Woodbury Hall.....	24,500.00
Hale Scientific Building.....	47,500.00
Engineering Building and heating plant.....	18,100.00
Heating plant, boilers, pipes in ground, fan house.....	9,000.00
Observatory	200.00
Ice House.....	300.00
Stable and shed.....	1,200.00
Chemistry Building.....	9,700.00
Gymnasium Building.....	5,700.00
Hospital, furnished.....	15,000.00
	<hr/>
	\$197,800.00

FURNITURE, ETC.

Team, implements, tools, engineer's and carpenter's supplies (value)	\$ 1,724.00
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Room furniture, as chairs, settees, desks, tables, movable cases, pictures, office furniture, dormitory and dining hall equipment, shades and janitor's supplies, gymnasium apparatus (value)	\$ 11,149.00
	<hr/>
	\$ 12,873.00

LIBRARY.

Library (value)	\$ 40,000.00
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APPARATUS.

Biology (Including specimens)	\$ 2,507.00
Chemistry	2,720.00
Civil Engineering	3,731.00
Comparative and English Literature	630.00
Electrical Engineering	4,274.00
Geology	418.00
German	20.00
Greek	291.00
Hospital (furniture and instruments)	3,015.00
Latin	20.00
Mathematics	351.00
Mechanical Engineering	3,605.00
Medicine	4,762.00
Physics	7,145.00
Psychology	716.00
	<hr/>
	\$ 34,205.00

COLLECTIONS.

Geological and Mineralogical (value)	\$ 2,608.00
Art (cost)	1,800.00
	<hr/>
	\$ 4,408.00

SUMMARY.

Grounds	\$ 45,600.00
Buildings	197,800.00
Furniture, etc.	12,873.00
Library	40,000.00
Apparatus	34,205.00
Collections	4,408.00
	<hr/>
	\$334,886.00

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2-04

THE LIBRARY
OF THE
UNIVERSITY OF ILLINOIS

Fourteenth Biennial Report
OF THE
REGENTS
OF THE
UNIVERSITY OF COLORADO



Boulder, Colorado
October 1, 1904

UNIVERSITY OF COLORADO.

FOURTEENTH BIENNIAL REPORT OF THE REGENTS, 1902-1904.

To the State Superintendent of Public Instruction, and the Fifteenth General Assembly:

The Fourteenth Biennial Report, from October 1, 1902, to October 1, 1904, is herewith presented by the Regents.

DEPARTMENTS OF THE UNIVERSITY.

The departments of instruction in the UNIVERSITY OF COLORADO are comprehended under the following divisions:

I. COLLEGE OF LIBERAL ARTS.

Courses leading to the degree B. A.

II. GRADUATE SCHOOL.

Courses leading to the degrees M. A. and Ph. D.

III. COLORADO SCHOOL OF APPLIED SCIENCE.

Civil Engineering, leading to the degree B. S. (C. E.)

Electrical Engineering, leading to the degree B. S. (E. E.)

Mechanical Engineering, leading to the degree B. S.
(M. E.)

Chemical Engineering, leading to the degree B. S. (Ch. E.)

IV. COLORADO SCHOOL OF MEDICINE.

A four-year course leading to the degree M. D.

V. COLORADO SCHOOL OF LAW.

A three-year course leading to the degree LL. B.

VI. SUMMER SCHOOL.

VII. COLORADO STATE PREPARATORY SCHOOL. (Separate Organization, Grounds and Building. Conducted by the University.)

ATTENDANCE.*

The subjoined table shows the growth in attendance during the past few years:

Years.	Univ. Students.	Prep. Students.	Total
1891-2	66	103	169
1892-3	129	158	287
1893-4	159	146	305
1894-5	204	192	396
1895-6	267	242	509
1896-7	324	276	600
1897-8	337	273	610
1898-9	390	310	700
1899-00	433	356	789
1900-1	466	367	833
1901-2	510	352	862
1902-3	531	363	894
1903-4	581	385	966
1904-5	680 (estimated)	400 (estimated)	1080

DEGREES CONFERRED.

In 1903 and 1904 one hundred and seventy-three degrees were conferred, as follows:

	1903.	1904.	Total.
College of Liberal Arts	28	47	75
Graduate School	4	12	16
Colorado School of Applied Science.....	13	16	29
Colorado School of Medicine.....	8	14	22
Colorado School of Law.....	11	20	31
	<hr/> 64	<hr/> 109	<hr/> 173

The Colorado State Preparatory School graduated thirty-nine students in 1903 and forty-four in 1904, a total of eighty-three.

*These numbers do not include summer school students.

GRADUATES.*

The register of the graduates now shows the following figures:

College of Liberal Arts.....	324
Graduate School	59
Colorado School of Applied Science.....	63
Colorado School of Medicine.....	128
Colorado School of Law.....	113
Honorary Degrees	12

699

GRADUATE SCHOOL.

The requirements of the Graduate School, always high, have recently been strengthened. Higher degrees are not granted for work done in absentia. All candidates for degrees Master of Arts and Doctor of Philosophy must be in residence at the University. The degree Master of Science is not offered.

There were nineteen graduate students in the year 1902-3, and twenty-three in the year 1903-4. Higher degrees have been conferred upon sixteen candidates within the biennial period.

In 1903 the degree Master of Arts was conferred upon—

Name.	Subject of Thesis.
Maud Elden,	"Limits of Functions of a Real Variable, with Numerous Analytical and Graphical Illustrations."
Milton Lawrence Kephart,	"Charities and Corrections in Colorado."
John Walter Needles,	"The Caribou Iron Dyke."
Daniel Pomeroy Taylor,	"Psychological Effects Incident to the Evolution of Technic."

In 1904 the degree Master of Arts was conferred upon—

Philip Henry Argall,	"Smelter and Mill Methods of Analysis in Use in the West." (1)
William Bell,	"The Romanticism of Heine."
Neata Clark,	"Cotyledon and Leaf Structure in Certain Ranunculaceae."
Iva Bee Duer,	"An Examination of the Figures in Horace."

*In addition the graduates of the Colorado State Preparatory School number 462.

(1). Published in University of Colorado "Studies," Vol. II, No. 1.

Name.	Subject of Thesis.
Aurelio Macedonio Espinosa,	"Echegaray's El Gran Galeoto." (2)
John Madison Fletcher,	"Emerson's Educational Theories."
Ethel Jackson,	"The Charter of the City and County of Denver."
Hortense Roberts,	"Epigraphic Evidence for the Reign of Nero in Spain and Gallia Narbonensis."
Ruth Elsie Scott,	"Typical Descriptions of Ideal Conditions of Life and Places in Classical Literature."
Robert John Wells,	"A New Dihydro-Quinoxaline." (3)
The degree Ph. D. was conferred upon—	
Milo Grant Derham,	"Signa and Less Usual Cognomina in Latin Epigraphy."
Fred Allison Howe,	"Wordsworth's Educational Theories." (4)

COLLEGE OF LIBERAL ARTS.

The important changes in the faculty of the College of Liberal Arts during the past two years are as follows:

William Duane, Ph. D., Professor of Physics, was granted a one year's leave of absence, beginning September, 1904, and Charles A. Lory, M. S., is conducting the work in Physics as Acting Professor during his absence.

Francis Ramaley, Ph. D., Professor of Biology, was given leave of absence to travel in the Orient, beginning December, 1903, and the work of his department was conducted until June, 1904, by Chancey Juday, M. A., who ranked as Acting Professor.

Assistant Professor Arnold Emch, Ph. D., was made Professor of Graphics and Mathematics in September, 1903.

Russell D. George, M. A. (McMaster), Fellow of Chicago, was appointed in September, 1903, to fill the chair of Geology, made vacant by the resignation of Professor Nevin M. Fenneman, Ph. D., to accept a professorship in the University of Wisconsin.

(2). Published by C. A. Koehler & Co., Boston.

(3). Published in University of Colorado "Studies," Vol. II, No. 2.

(4). Accepted by D. Appleton & Co. for publication.

Sanford Bell, M. A. (Indiana State), Fellow of Clark, was appointed in September, 1903, to the chair of Education, an important part of his work being the visitation of the high schools of the State.

Joseph H. Bair, Ph. D. (Columbia), was appointed in January, 1904, to the chair of Psychology and Education, made vacant by the death of Arthur Allin, Ph. D., on November 17, 1903.

Frederic L. Paxson, Ph. D. (Pennsylvania), was appointed Assistant Professor of History in February, 1903, in place of Professor Walter H. Nichols, M. A., resigned. He was promoted to be head of the department in September, 1904. William J. Truesdale, M. A., was Acting Professor of History from February to June, 1903.

Milo G. Derham, Ph. D. (Colorado), was appointed in September, 1904, to the position of Assistant Professor of Latin.

Miss Henrietta J. Meeteer, Ph. D. (Pennsylvania), was appointed in September, 1904, to the position of Dean of Women, made vacant by the resignation of Miss Margaret E. Stratton, M. A.

George C. Taylor, M. A., Instructor in English, was granted leave of absence in February, 1903, and Fred A. Howe, M. A., LL. B., was appointed to take charge of his work. Mr. Howe remained at the University until June, 1904. Mr. Taylor's leave of absence was extended at that time, and James F. Royster, B. A., is conducting the department until his return in January, 1905.

Mr. Robert W. Stevens was appointed Instructor in Music in September, 1903, succeeding John P. Langs, B. A., resigned.

Judge Junius Henderson has been appointed Curator of the Museum.

Important changes have been made in the College curriculum, as first appeared in the catalogue published in March, 1903. First effective in June, 1904, the three degrees previously awarded were merged in the degree Bachelor of Arts. The requirements for graduation under the revised curriculum are as follows:

To attain the degree of Bachelor of Arts, a student must complete one hundred and thirty hours, including ten hours in English and twenty hours in a major subject to be chosen not later than the end of the Sophomore year. All students in the Freshman year must take three hours of English each semester, and five hours each semester from the following groups:

- I. Mathematics.
- II. Classical Languages.
- III. Natural Sciences.

All students of the Sophomore year are required to take two hours of English each semester. All hours not implied in the above requirements are elective.

Naturally, the requirements for admission were modified to fit the above plan, and the following scheme was adopted and published in the catalogue of 1903-4:

Sixteen units are required for admission. A unit course of study is defined as a course covering a school year of not less than thirty-five weeks, with four or five (preferably five) periods of at least forty-five minutes each per week.

Mathematics (preferably 3) at least.....	2
Languages other than English (4 units of Latin preferred, at least 2 units urgently advised).....	4
English	3
History	2
Science (no half units accepted in Physics and Chemistry).....	2
Elective	3
	—
	16

Electives may be chosen from the following: Mathematics 2; Greek 3; Latin 3; French 3; German 3; Spanish 2; History 2; English 2; Science 2; Drawing 1; Psychology $\frac{1}{2}$ or 1; Political Economy $\frac{1}{2}$ or 1.

Students who present 3 units of Greek are required to present only 1 unit of Science, but they must have a total of 16 units.

Students who do not present Solid Geometry for entrance must either choose Mathematics among the Freshman required subjects, or pursue the course in Solid Geometry in the Freshman or Sophomore year.

Students intending to pursue the study of Latin in the University should present for entrance 4 units of Latin; those intending to pursue the study of Greek should present preferably 3, at least 2, units of Greek.

A Summer School was organized in the spring of 1904 and the first session held June 20 to July 30, 1904. Courses were offered in the following subjects: Mathematics, Classical Languages, Chemistry, Botany and Biology, Geology, Physics, English Literature, Modern Languages, History and Sociology, and Psychology and Education.

A credit of two hours toward the one hundred and thirty required for the Bachelor's degree was given for each five-hour course

successfully pursued in the Summer School by a regularly matriculated student.

The attendance numbered sixty and included prominent teachers and educators from every part of the State.

SCHOOL OF APPLIED SCIENCE.

Four courses are now offered in the School of Applied Science, leading to the degree Bachelor of Science in Civil, Electrical, Mechanical and Chemical Engineering.

The following appointments have been made in the faculty during the past two years:

Lindsay Duncan, M. S., was appointed in September, 1903, to the Chair of Civil Engineering, to fill the position made vacant by the resignation of Charles Derleth, Jr., B. S., C. E. Professor Derleth accepted a similar position in the University of California. In July, 1904, Milo S. Ketchum, C. E. (Illinois), was appointed Professor of Civil Engineering in place of Professor Duncan, resigned.

Professor George H. Rowe, B. S., resigned his position as Professor of Electrical Engineering and Dean of the School in August, 1903, having accepted a position in the Leland Stanford, Jr., University, California. Henry B. Dates, S. B. (Massachusetts Institute of Technology), was appointed to the vacant chair, and in October, 1903, became Dean of the School.

H. Chester Crouch, M. E., Assistant Professor of Mechanical Engineering, died on October 29, 1903. His place was temporarily filled by the appointment of Morris M. Green, M. E. In September, 1904, John A. Hunter, B. S., M. E. (Pennsylvania State), was appointed Assistant Professor of Mechanical Engineering.

A wing to the Engineering Building, consisting of two stories and a basement, was completed in March, 1904, affording much needed accommodations for recitation rooms, drawing rooms and laboratories, the former building being entirely inadequate for the work of the School.

There has been a very material increase in laboratory equipment since the last report. The forge and machine shops have been equipped with new apparatus and tools, while the facilities of the wood-working shop have also been enlarged. However, the number of students demanding shop work has increased more rapidly than the equipment necessary to this work. For Electrical Engineering a new photometer room has been provided and equipped for photometry of the various forms of electric lamps. A considerable amount of

new electrical apparatus has been installed and the equipment of instruments enlarged that the department may fully meet the demands made upon it by the increasing size of classes and the rapid advancement in the electrical arts. A hydraulic laboratory has been laid out for the Civil Engineering department.

The curriculum of the School has been extended by the introduction, September, 1904, of a four-year course in Chemical Engineering.

SCHOOL OF MEDICINE.

The clinics at the Hospital and Dispensary are rapidly increasing in number. Especially gratifying is the rapid increase in the amount of clinical material in internal medicine and surgery, thereby allowing the upper classes an opportunity for much bedside work.

The tendency of medical students to take collegiate degrees or one or more years of collegiate training before beginning the work of the Medical School is worthy of note. At present nearly one-third of the students in attendance have college degrees, and many have had one or more years in college.

Dr. James R. Arneill has been appointed Associate Professor of Medicine. Previously he occupied a similar position in the University of Michigan. Dr. Oscar M. Gilbert has been made Professor of Anatomy. Dr. Jacob Campbell was appointed Lecturer in Surgery, on the death of Dr. L. Z. Coman. Dr. Walter W. Reed has been appointed Assistant in Obstetrics.

In November, 1902, Doctor Frederic S. Lee of Columbia University presented the Medical Department with a sum of money which has been used in purchasing physiological apparatus. Some of the instruments procured are cardiograph, chronometer, tambours, pneumograph, monometer, spirometer, ergograph and plethsmograph. A stereopticon lamp, which has been found of great assistance in various demonstrations, has been purchased for one of the lecture rooms.

SCHOOL OF LAW.

The Law School has since our last report shown a growth commensurate with the other departments of the University, the graduating class of 1904 being the largest in the history of the School, and the number of registrations for the first-year class in September of this year exceeding by over twenty-five per cent. the registrations of any year previous.

In June, 1903, Mr. John D. Fleming, a practitioner of experience at the Colorado Bar, a graduate of Center College of Kentucky,

and a graduate in law of the Law Department of the University of Louisville, and subsequently a student in special course under the late Professor John D. Minor at the University of Virginia, was appointed Secretary of the School and Professor of Law, thus restoring the complement of resident Professors which the School had not had since the death of the lamented Professor Murfree.

Professors Albert A. Reed, William H. Pease and Frederic L. Paxson remain as resident Professors of Law, while the continued work in regular course of Dean John Campbell and Professors Edwin Van Cise, Calvin E. Reed, William H. Bryant and Robert Given, of Denver, in the subjects of Corporations, Colorado Civil Code, Appellate Practice, Mining Law and the Law of Irrigation and Water Rights, together with the special lecturers in regular attendance for the teaching of other important topics of the law, justify the belief that the Law School has already attained a high degree of efficiency.

The course of study is based upon the "case" system, but remains a conservative combination of such system with text-book and lecture-room work, with especial reference to the needs of western students and practitioners in Mining and Irrigation law.

The library shows a steady increase in State reports and late text-books, but it is strongly desired that means may be provided for much larger additions in the near future.

It is gratifying to report the continued increase of the percentage of college-trained students among the matriculates, evidencing the tendency toward higher scholastic preparation before entering upon a professional career, which the faculty has consistently endeavored to foster.

The School continues a member of the Association of American Law Schools and in September of this year for the first time sent a delegate to the annual meeting of that body.

PREPARATORY SCHOOL.

The enrollment in 1902 was 352, in 1903 was 363, in 1904 was 385. The enrollment for this year will be about 400.

It has become necessary to make four divisions of the first-year class.

Thirty-eight students out of the last graduating class of forty-four are at present doing regular work in the courses at the University.

There have been several changes in the corps of instructors since the last report.

Mr. Eugene E. Gill, A. M., is the Science Master; Mr. Albert O. Cooperrider, B. A., has the Mathematics; Mrs. Wilmatte P. Cockerell, A. B., has the Biology; Mr. James F. Denison, A. B., is the English Master; Miss Hilda C. Kallgren, B. A., teaches Latin and German; Mr. Avery T. Leavitt has charge of the drawing; Miss Lillian McCracken has charge of the work in Music.

On account of the division of the large classes it has been necessary to put in one extra teacher, and Miss Hilda C. Kallgren, of the class of 1899 at the Preparatory, and 1903 at the University, has been appointed as a regular teacher.

There are at present five masters and six women assistants doing regular work in the School.

As a classical school the Preparatory easily takes the lead of any school in the Rocky Mountain region, furnishing a large percentage of the students in some of the classes at the University.

A new course of study has been put in this year. In this course the amount of History and English has been increased. The Drawing has been limited to the scientific course, and the number of hours of required Music has been diminished.

BUILDINGS AND GROUNDS.

During the past two years the University Campus has undergone extensive improvements. The central portion of the Library Building has been completed and is now in use. The building is of gray brick with white sandstone trimmings, and is a thoroughly modern and serviceable structure. The cost of the central portion as it now stands, including heating and stacks, was about \$80,000.00.

A wing has been added to the north end of the Engineering Building at a cost of over \$27,000.00, and the additional space afforded has been utilized for recitation rooms, drawing rooms and laboratories.

The Observatory has been moved farther south, put on a new foundation, painted and repaired.

A complete lighting plant has been installed in the Engineering Building, which furnishes light to all the University buildings. Several buildings have been re-wired with a view to safety. A number of arc lamps have been installed at various points about the campus. The heating system has been extended by laying pipe lines from the Engineering Building to the Library and Medical buildings, and the entire system has been remodeled. A system of heating by steam at atmospheric pressure is now in use in all the buildings.

Stone walks have been laid from Woodbury Hall, on the north side, to the Engineering Building, from the Main to the Library Building, from the Library Building to Cottage No. 1, and from the Main Building to Cottage No. 1. The old walks have been straightened in many places, and the entire quadrangle is now completely defined by walks. The lake bottom has been graded and the dam repaired.

The quadrangle was graded and sown in grass last summer and now presents a most pleasing appearance. New trees have been planted in numerous places and vines started at the various buildings. A large flagpole has been erected at the south end of the athletic field. The athletic field has also been surfaced with a view to affording the best conditions for football and baseball training.

The Museum has been enlarged by the addition of many new geological and biological specimens and all the material has been rearranged and classified.

In April, 1904, a purchase of five acres of land adjoining the old campus on the east was made. A roadway thirty feet in width, dividing the new purchase from the original campus, was deeded to the University by the County of Boulder.

RELATION TO THE HIGH SCHOOLS.

The fact that the State University is virtually a part of the public school system of Colorado is rapidly becoming recognized and accepted as significant by superintendents and principals of high schools and generally by the citizens of the State. Much has been done within the past two years so to articulate the State University with the high schools that both shall intelligently and sympathetically coöperate in working out the purpose of each. On December 12, 1903, a University and High School Conference was held in Boulder. The conference was well attended by superintendents and high-school principals from the best schools of the State. The deliberations of this conference resulted in the adoption of the sixteen units of study referred to on page 6 as a basis for admission to the various departments of the University.

This standard has been accepted by practically all of the high schools of the State, and is the basis of their courses of study. At present there are thirty-eight of the high schools of Colorado and one of Wyoming upon the University's accredited list. It is the very apparent ambition of all of the other high schools of the State to win a place upon this list.

In August, 1903, the Regents appointed Sanford Bell, M. A., as Inspector of High Schools, with the title of Professor of Education. This Inspector spends at least three-fourths of his time in visiting high schools and in looking after other interests of the University in the various communities. In the year 1903-4 he visited every high school in Colorado that is upon the University's accredited list and many others that are aspiring to be placed there. Many of the schools were visited several times. Commencement addresses before twelve high school graduating classes of 1904 were delivered by the Inspector of High Schools.

The University succeeded in securing the appointment of fifty-one University graduates to important school positions in Colorado during the summer of 1904, the great majority of appointments being to high-school positions.

The annual High-School Day conducted at the University in May attracts a larger number of High-School students each year. Over 2,000 High-School visitors were present at the celebration last May. The program consisted chiefly of Interscholastic Oratorical and Literary Contests and an Interscholastic Track Meet. The Literary Contest, in which girls representing accredited high schools of the State competed, was a new feature of last High-School Day.

PHYSICAL CULTURE AND ATHLETICS.

In the department of Physical Culture and Athletics great progress has been made.

In September, 1903, a Director of Physical Culture was appointed by the Regents; he was given entire charge of all gymnasium instruction and of the coaching, training and directing of all outdoor athletics.

A thoroughly organized schedule of classes for both men and women is daily conducted in the gymnasium.

Basket ball teams, representing the men and women of the University, play in their season a schedule of intercollegiate games, and frequent public exhibitions of gymnastic work are given by the gymnasium team.

A Cross Country Club with a splendid membership was organized as a feature of athletics in the winter of 1903-4. The club, besides affording a means of developing material for other athletic teams, conducts what is termed an Olympic Tournament, to the winners in which certain prominent citizens of Boulder have offered annual prizes.

The football team of the University plays annually a schedule of ten or more intercollegiate games. In the season of 1903 ten games were played, four of which were with state universities of the Middle Western States. For the season of 1904 twelve intercollegiate games are arranged, six of which are with universities of other states.

The track team of the University for the year 1903-4 competed with teams from the universities of Nebraska and Utah, besides engaging in the usual State contests, and was represented in the World's Fair Western Intercollegiate Championships at St. Louis.

Baseball in the University is conducted upon the same basis as other branches of athletics, and in addition to the State Intercollegiate schedule, consisting of ten games, a series of interstate games is played.

Extensive improvements have been made upon the athletic field of the University. Steel lockers have been ordered for the gymnasium and facilities for bathing have been more than doubled.

The control of athletics is vested in a Board of Control consisting of three faculty members appointed by the President of the University, and the President of the Student Athletic Association.

NEEDS.

The Thirteenth General Assembly made a special appropriation for the University of \$120,000, with the proviso that the entire income from the one-fifth mill and the appropriation should not exceed \$220,000 for the biennial period, December, 1900, to December, 1902.

The Fourteenth General Assembly increased the mill rate to two-fifths, but the increase affected only the second year of the biennial period, December, 1902, to December, 1904, hence \$40,000 special appropriation was voted for the support of the University during the period. This special appropriation of \$40,000 has not been paid, and in consequence the University is suffering from a large deficit at the close of the biennial period. This amount should be made good early in the session of the Fifteenth General Assembly.

Aside from all improvements the average running expenses of the University for the last two years have been about \$120,000 per year. During the period the increase in attendance has been large, with a corresponding increase in necessary expenses. The running expenses are now not far from \$140,000 per year, with a hundred legitimate demands in various directions that cannot be met.

It will be impossible to meet the regular expenses and make all the needed improvements from the proceeds of the two-fifths mill. The immediate needs are completion of the Chemistry Building, a Law Building, an Auditorium, a new Heating Plant, a Women's Dormitory, completion of the Library Building.

The last General Assembly made provision for payment of emergency loans to the University and other State institutions. A large part of the University loan has now been paid by the State and the remainder is being paid as fast as funds for the purpose accumulate.

GIFTS.

Previous reports have recorded gifts valued at \$46,561.00. Gifts during the past two years are as follows:

Class of 1903, University of Colorado, casts of the Parthenon frieze	\$ 52.50
Hon. J. P. Maxwell, Boulder, miscellaneous collection (Museum)	200.00
Judge Junius Henderson, Boulder, birds' nests and eggs (Museum)	10.00
Professor D. W. Spangler, Longmont, mineral specimens (Museum)	2.00
Mr. L. C. Bragg, Boulder, bird specimens (Museum)	20.00
Rev. H. H. Walker, Boulder, collection of birds' eggs (Museum)	25.00
Mr. Walter Blanchard, Boulder, birds' eggs (Museum)	50.00
Mr. Ernest Andrews, San Bernardino, California, collection of insects (Museum)	60.00
Mr. P. J. Werley, Boulder, ornithological specimen (Museum)	1.00
Mrs. William Duane, Boulder, insects and herbarium specimens (Museum)	20.00
Mr. S. Pells, Boulder, mycological specimen (Museum)	1.00
Dr. L. Z. Coman, specimen of mountain lion (Museum)	45.00
Dr. M. Treub, Buitenzorg, Java, plant photographs (Biology)	10.00
Mrs. Maude Clark Gardiner, Boulder, microtome (Biology) ..	30.00
Various students, individual specimens of spiders, snakes, centipedes, scorpions, etc. (Biology) .....	....
Mutual Life Insurance Company, New York, charts (Economics and Sociology)	10.00
Secretaries of various States, constitution and legislative manuals (Economics and Sociology)	40.00

Standard Oil Company, Whiting, Ind., petroleum products (Geology)	\$ 25.00
Messrs. Stephens and O'Connell, Silver Plume, mineral speci- mens (Geology)	10.00
Hon. W. J. King, Villa Grove, rhodochrosite and mineral cork (Geology)	2.00
Colorado School of Mines, Golden, fossil leaves (Geology)....	25.00
Professor N. M. Fenneman, Madison, Wis., paleozoic fossils (Geology)	10.00
Judge Junius Henderson, Boulder, fossils (Geology)	15.00
Mr. Fred Fair, Boulder, crystals and rock specimens (Geology)	4.00
Dr. Amy Bell, Boulder, specimens of native copper (Geology)	2.00
Mr. H. J. Kesner, Boulder, specimens of marble and onyx marble (Geology)	4.00
Mr. C. I. Anderson, Georgetown, specimens of cerussite and other minerals (Geology)	3.00
Mr. H. V. Welch, Boulder, gold, silver and lead ores (Geology)	2.00
Mr. W. S. Cunningham, Boulder, gold and silver tellurides (Geology)	3.00
Professor Joseph H. Bair, Boulder, discrimination and asso- ciation board, stereoscopes, charts, views, etc. (Psy- chology)	27.00
Various donors, books and pamphlets. (Reported in detail under the head of library gifts—History) .....	....
Weston Electrical Instrument Company, Waverly Park, N. J., one case of parts of Weston instruments (Electrical En- gineering)	50.00
General Electric Company, Schenectady, N. Y., one sample case incandescent lamps, photographs (Electrical En- gineering)	20.00
Westinghouse Electric & Manufacturing Company, Pittsburg, photographs (Electrical Engineering)	10.00
Sprague Electric Company, New York, conduit samples (Elec- trical Engineering)	10.00
D. & W. Fuse Company, Providence, R. I., sample board of fuses (Electrical Engineering)	5.00
Mr. Paul Doty, St. Paul, Minn., four integrating wattmeters (Electrical Engineering)	40.00

John A. Roebling's Sons Company, Trenton, N. J., one sample board of wire cables (Civil Engineering)	\$ 20.00
American Locomotive Company, Schenectady, N. Y., four pictures (Civil Engineering)	12.00
Union Pacific Railway Company, two pictures (Civil Engineering)	6.00
Penberthy Injector Company, Detroit, one Penberthy injector (Mechanical Engineering)	10.00
Westinghouse Air Brake Company, Pittsburg, one air brake outfit (Mechanical Engineering)	250.00
Morris Machine Works, Baldwinsville, N. Y., one centrifugal pump (Mechanical Engineering)	50.00
Federal Manufacturing Company, Cleveland, seven steel balls (Mechanical Engineering)	50
Colorado & Southern Railway Company, two-truck spring (Mechanical Engineering)	1.00
The Bashlin Company, Warren, Pa., faucet (Mechanical Engineering)	1.00
George R. Moore, Boulder, set of tools for milling machine (Mechanical Engineering)	30.00
Dr. Frederic S. Lee, Columbia University, New York, gift to Medical School	175.00
Mr. J. T. Hart, through his son, B. A. Hart, Red Cliff, Colo., mine model used in litigation between quartzite vein owners and owners of contact mines on Battle Mountain, Colo. (Colorado School of Law)	250.00
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	\$1,649.00

Library gifts; also reported on page 29—

	Books. Pamp. Maps	
Addison, Mrs. Herbert	8	
Alabama Geological Survey	12	4
Baker, Pres. James H.	23	25
Brackett, Dr. J. R.	8	10
Cambridge University		6
Canada Geological Survey	22	
Colorado Agricultural College		10
Colorado Secretary of State	59	
Craig, Dr. W. B.	43	
Creighton University	1	4
Denver Public Library	6	

	Books.	Pamp.	Maps.
Duane, Dr. William	16	1	
Ekeley, Dr. John B.	2		
Emch, Dr. Arnold.....	10	2	
Gardiner, Mrs. Maude	53		
Giffin, Dr. L. M.	9		
Greenman, A. A.	32	4	
Grimsley, Mr.	1	5	
Harris, Herbert	77		
Heath & Co.		12	
Hellems, Dr. Fred B. R.	4	1	
Henderson, Judge Junius	16		
Henry, Carl	8		
Jones, Mrs. R. W.	20		
Kansas Historical Society	7	14	
Kansas State University	6		
Los Angeles, Cal. (School Reports)....		2	
Maryland Geological Survey	8		
Mississippi River Commission		43	
Moore, George	17		
Nevada Board of Education		10	
Paxson, Dr. Frederic L.	3		
Phillips, Dr. John B.	8		
Reed, Calvin	7		
Rocky Mountain News, bound vols. of Times and Post	54		
Smithsonian Institution	6	53	
U. S. Supt. Doc. and Depts.....	480	163	7
University of Chicago		23	
University of Chicago Library		36	
University of Colorado Glee Club.....	2	76	
University of Nebraska		15	
University of Pennsylvania		16	
University of the State of New York ...	57		
University of Toulouse.....		8	
Watts, H. F.	8		
	1,093	543	7
Miscellaneous	347	1,582	4
	1,440	2,125	11

Total value of library gifts.....	\$ 300.00
Total value of gifts 1902-1904.....	1,949.00

Gifts previous to 1896.....	\$ 27,207.00
Gifts, 1896-1898	11,556.00
Gifts, 1898-1900	7,042.00
Gifts, 1900-1902	756.00
Gifts, 1902-1904	1,949.00
Total.....	\$48,510.00

REPORTS SUBMITTED.

We submit herewith the pay roll of the University, Secretary's Fee Report, Report on Permanent Fund, Report of State Auditor, Treasurer's Report, Secretary's Report, Librarian's Report, Inventory of Property.

Respectfully submitted,

DAVID M. RICHARDS,
HAROLD D. THOMPSON,
WILLIAM H. BRYANT,
FRANK E. KENDRICK,
OSCAR J. PFEIFFER,
WILLIAM J. KING,
Board of Regents.

JAMES H. BAKER,
President.

EDWIN J. INGRAM,
Secretary.

APPENDIX.

PAY ROLL OF THE STATE UNIVERSITY.

ADMINISTRATION.

James H. Baker, M. A., LL. D., President.....	\$ 5,000.00
Edwin J. Ingram, B. A., LL. B., Sec'y Board of Regents...	720.00
Harry J. Kesner, Secretary.....	900.00
Fred E. Hagen, Assistant Secretary.....	180.00
Katharine Kalene, Stenographer.....	420.00
	<hr/>
	\$7,220.00

COLLEGE OF LIBERAL ARTS.

Fred B. R. Hellems, Ph. D., Dean, Professor of Latin.....	\$ 2,200.00
Mary Rippon, Professor of the German Language and Literature	2,000.00
J. Raymond Brackett, Ph. D., Secretary of the Graduate Faculty; Professor of Comparative and English Literature	2,500.00
Ira M. DeLong, M. A., Professor of Mathematics.....	2,500.00
Charles C. Ayer, Ph. D., Professor of Romance Languages.	2,000.00
William Duane, Ph. D., Professor of Physics.....	2,000.00
Charles A. Lory, M. S., Acting Professor of Physics.....	.....
George Norlin, Ph. D., Professor of Greek.....	2,000.00
Francis Ramaley, Ph. D., Professor of Biology.....	2,000.00
Melanchthon F. Libby, Ph. D., Professor of Philosophy...	1,800.00
John B. Phillips, Ph. D., Professor of Economics and Sociology	1,800.00
John B. Ekeley, Ph. D., Professor of Chemistry.....	2,000.00
Arnold Emch, Ph. D., Professor of Graphics and Mathematics	1,500.00
Russell D. George, M. A., Professor of Geology.....	1,900.00
Sanford Bell, M. A., Professor of Education.....	1,800.00
Joseph H. Bair, Ph. D., Professor of Psychology and Education	1,700.00
Frederic L. Paxson, Ph. D., Professor of History.....	1,600.00

Milo G. Derham, Ph. D., Assistant Professor of Latin.....	\$ 1,000.00
Henrietta J. Meeteer, Ph. D., Dean of Women.....	1,000.00
Fordyce P. Cleaves, M. A., Instructor in Oratory.....	500.00
George C. Taylor, M. A., Instructor in English.....	1,200.00
James F. Royster, B. A., Acting Instructor in English....	.....
Robert W. Stevens, Instructor in Music.....	1,200.00
Louise M. Peters, B. A., Assistant in German.....	100.00
Amandus Johnson, B. A., Assistant in German.....	200.00
Ida T. Speidel, M. S., Assistant in Mathematics.....	200.00
Harvey E. Murdock, Assistant in Mathematics.....	100.00
Helen J. Aldrich, B. A., Assistant in Romance Languages..	200.00
Elizabeth C. Wilhelmy, Assistant in Romance Languages..	100.00
Fred G. Person, Assistant in Physics.....	200.00
Claude C. Coffin, Assistant in Physics.....	200.00
Luzerne D. Fowler, B. A., Assistant in Greek.....	200.00
Gideon S. Dodds, B. A., Assistant in Biology.....	300.00
Harvey Markman, Assistant in Biology.....	200.00
Adelbert A. Weiland, B. A., Assistant in Chemistry.....	200.00
Roe E. Remington, Assistant in Chemistry.....	200.00
John L. Cozzens, Assistant in Drawing.....	100.00
Ralph D. Crawford, Assistant in Geology.....	200.00
Gertrude S. Bell, Assistant in Education.....	400.00
H. Foster Jones, M. A., Assistant in English.....	200.00
Mary E. Keyser, Assistant in English.....	50.00
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	\$39,550.00

SCHOOL OF APPLIED SCIENCE.

Henry B. Dates, S. B., Dean; Professor of Electrical Engineering	\$ 2,000.00
Milo S. Ketchum, C. E., Professor of Civil Engineering...	2,000.00
John A. Hunter, M. E., Assistant Professor of Mechanical Engineering	1,400.00
George R. Moore, Superintendent of Shops.....	900.00
Fred H. Kroger, B. S. (E. E.), Assistant in Electrical En- gineering	400.00
Howard C. Ford, B. S. (C. E.), Assistant in Civil Engi- neering	400.00
Jacob Faus, Instructor in Shops.....	210.00
	<hr/>
	\$7,310.00

SCHOOL OF MEDICINE.

Luman M. Giffin, M. D., Dean; Professor of the Principles of Surgery and Clinical Surgery.....	\$ 350.00
John Chase, B. A., M. D., Professor of Ophthalmology and Otology	250.00
Thomas E. Taylor, B. A., M. D., Professor of Obstetrics...	220.00
William B. Craig, M. D., Professor of the Principles of Surgery and Pelvo-Abdominal Surgery.....	.....
E. Barber Queal, M. D., Professor of Physiology.....	250.00
Eugene H. Robertson, Ph. M., M. D., Professor of Pathology and Bacteriology	1,600.00
George H. Cattermole, M. D., Professor of Diseases of Children and Clinical Medicine.....	100.00
Frank E. Waxham, M. D., Professor of Medicine, Clinical Medicine, Laryngology and Rhinology.....	340.00
Francis Ramaley, Ph. D., Professor of Histology. (Salary noted elsewhere).	
Charles Fisher Andrew, M. D., Professor of Materia Medica and Therapeutics	100.00
Charles S. Elder, M. D., Professor of Gynecology and Abdominal Surgery	330.00
Newton Wiest, M. D., Professor of Diseases of the Skin....	130.00
Arthur McGugan, B. Sc., M. D., Professor of Psychiatry and Nervous Diseases.....	330.00
John B. Ekeley, Ph. D., Professor of Chemistry. (Salary noted elsewhere).	
James R. Arneill, A. B., M. D., Professor of Medicine and Clinical Medicine	1,000.00
Oscar M. Gilbert, M. D., Professor of Anatomy.....	200.00
Willard J. White, M. A., M. D., Lecturer on Hygiene and Medical Jurisprudence	50.00
Howard F. Rand, M. D., Lecturer on Physical Therapeutics	50.00
Jacob Campbell, M. D., Lecturer on Minor Surgery and Bandaging	100.00
Joseph H. Bair, Ph. D., Special Lecturer on Psychology. (Salary noted elsewhere).	
Dessie B. Robertson, D. D. S., D. D. Sc., Associate in Pathology and Bacteriology.....	350.00
Martin E. Miles, M. D., Assistant in Anatomy, Demonstrator of Anatomy and Lecturer on Neurology.....	400.00

John A. Russell, M. D., Laboratory Instructor in Minor Surgery and Bandaging.....	\$ 25.00
Walter W. Reed, M. D., Laboratory Instructor in Pharmacognosy and Assistant to the Chair of Obstetrics....	50.00
Daniel C. Jacobs, B. S., B. Pd., Assistant in Organic Chemistry	200.00

UNIVERSITY HOSPITAL.

Anna E. Harris, Matron.....	600.00
Eight Nurses	768.00
Hospital employees, as cook, laundress, orderly.....	1,200.00

\$8,993.00

SCHOOL OF LAW.

Appropriation for traveling expenses of professors and lecturers whose salaries are not indicated.....	\$ 300.00
John Campbell, M. A., LL. B., Dean; Professor of Law of Private and Municipal Corporations.	
Moses Hallett, LL. D., Dean and Professor of American Constitutional Law, <i>Emeritus</i> .	
John D. Fleming, B. A., LL. B., Secretary; Professor of Law and Judge of the Practice Court.....	2,500.00
Albert A. Reed, LL. B., Professor of Law.....	1,200.00
Calvin E. Reed, LL. B., Professor of Law.	
William H. Bryant, B. S., LL. B., Professor of Law.	
Robert Given, B. A., Professor of Law.	
Edwin Van Cise, Professor of Law.	
William H. Pease, B. A., LL. B., Professor of Law.....	1,500.00
Frederic L. Paxson, Ph. D., Professor of American and English Constitutional and Political History. (Salary noted elsewhere).	
Thomas M. Robinson, Associate Judge of Practice Court.	
Hugh Butler, Lecturer on Common Law Pleading.	
Luther M. Goddard, LL. B., Lecturer on Law of Patents, Copyrights and Trademarks.	
Robert S. Morrison, Lecturer on Law of Mines and Mining.	
Charles S. Thomas, LL. B., Lecturer on Law of Evidence.	
Henry T. Rogers, M. A., Lecturer on Law of Corporations.	
Lucius M. Cuthbert, M. A., LL. B., Lecturer on Roman Law.	
John A. Riner, LL. B., Lecturer on International Law.	
Platt Rogers, LL. B., Lecturer on Law of Irrigation.	

John H. Denison, B. A., Lecturer on Equity Jurisprudence,
Pleading and Practice.

Ralph Talbot, B. A., Lecturer on Criminal Law and Pro-
cedure.

Charles D. Hayt, Lecturer on Law of Taxation.

Caesar A. Roberts, M. A., Lecturer on Colorado Civil Code.

Arthur McGugan, B. Sc., M. D., Lecturer on Mental Alien-
ation.

Willard J. White, M. A., M. D., Lecturer on Medical Juris-
prudence.

Ernest L. Williams, LL. B., Lecturer on Conveyancing.

John H. Fry, Stenographer.....\$ 40.00

Frank H. Kinsell, Ph. B., Librarian..... 40.00

Glen F. Mott, Librarian..... 40.00

\$5,620.00

LIBRARY AND PHYSICAL TRAINING.

Alfred E. Whitaker, M. A., Librarian.....\$ 1,600.00

Janet Bird, Assistant Librarian..... 800.00

Hugh P. Remington, Assistant in Library..... 300.00

Granvil B. Warner, Assistant in Library..... 150.00

David B. Cropp, Ph. B., Director of Physical Training and
Athletics 1,500.00

Alfred H. Law, B. S., Assistant in Gymnasium..... 50.00

\$ 4,400.00

PREPARATORY SCHOOL.

(One-third paid by University.)

Henry White Callahan, Ph. D., Headmaster, Instructor in
History and Latin (Plus \$250.00).....\$ 916.66

Eugene E. Gill, A. M., First Assistant and Instructor in
Physics and Chemistry..... 400.00

James F. Denison, B. A., Instructor in English..... 300.00

Albert O. Cooperrider, B. A., Instructor in Mathematics.. 240.00

Matilda Krebs, Ph. B., Instructor in English..... 266.66

Anna M. Grant, B. A., Instructor in Greek and Latin..... 266.66

Carrie E. Orton, Ph. B., Instructor in Latin..... 266.66

Maud Elden, M. A., Instructor in Mathematics and History 266.66

Avery T. Leavitt, Instructor in Drawing.....	\$ 66.66
Hilda C. Kallgren, B. A., Instructor in Mathematics and German	183.33
Wilmatte P. Cockerell, A. B., Instructor in Biology and Physiography	333.33
Lillian McCracken, Instructor in Music.....	120.00
Claude H. Compton, Assistant in Chemistry.....	66.66
Marjery G. Fairchild, Secretary.....	90.00
R. T. Marshall, Janitor.....	270.00
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	\$4,053.28

OTHER EMPLOYEES.

Joseph Klemme, Steward	\$ 540.00
John S. Semones, Superintendent of Heating and Lighting	1,080.00
John Gumeson, Carpenter	900.00
Mort Fitzgerald, Fireman.....	600.00
Fred Anderson, Fireman	405.00
Celso Espinosa, Employee on Grounds.....	540.00
Washington B. Sears, Janitor Main Building.....	360.00
Nine Student Janitors.....	868.50
John A. Dopp, Clerk of Attendance Committee.....	40.50
John K. Mackie, Clerk of Attendance Committee.....	40.50
Edward J. Naugle, Stock Room Assistant.....	198.00
Rose Breach, care of rooms in Woodbury Hall and in Cot- tage No. 2 (estimated)	202.50
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	\$5,775.00

SUMMARY.

Administration	\$ 7,220.00
College of Liberal Arts.....	39,550.00
School of Applied Science.....	7,310.00
School of Medicine.....	8,993.00
School of Law.....	5,620.00
Library and Physical Training.....	4,400.00
Preparatory School	4,053.28
Other Employees	5,775.00
	<hr/>
Total.....	\$82,921.28

SECRETARY'S FEE REPORT.

From May 1, 1903, to October 1, 1904.

RECEIPTS.

Receipts from October 1, 1902, to May 1, 1903, through Omar E. Garwood, Secretary.....	\$ 3,366.29
Receipts from October 1, 1902, to May 1, 1903, through Dr. Luman M. Giffin, Treasurer Medical School.....	4,949.60
Tuitions and Fees from College of Liberal Arts and School of Applied Science.....	11,740.00
Tuitions and Fees from Law School.....	4,648.89
Tuitions and Fees from Medical School.....	4,556.00
Hospital Receipts	6,326.35
Chemistry Fees ..	1,176.10
Room Rent	1,349.80
Deposits	725.55
Summer School	799.00
Miscellaneous Receipts	1,533.07
	<hr/>
	\$41,170.65

DISBURSEMENTS.

Deposited by Omar E. Garwood, Secretary.....	\$ 3,366.29
Deposited by Dr. L. M. Giffin, Treasurer.....	4,949.60
Deposited with Treasurer.....	32,495.42
Cash in hands Sanford Bell.....	100.00
Notes for Tuition.....	131.25
Cash on hand.....	128.09
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	\$41,170.65

Respectfully submitted,

E. J. INGRAM,

Secretary Board of Regents.

REPORT ON PERMANENT FUND.

Board of Regents, State University, Boulder, Colorado:

GENTLEMEN—Below I give you statement of the condition of the University Permanent Fund on October 1, 1904.

University Permanent Fund.....	\$48,269.15
Invested	43,209.39
	<hr/>
Available (cash)	\$ 5,059.76

Unavailable warrants of years 1889 and 1894.....	\$27,763.87
Available warrants of year 1904.....	15,445.52
	<hr/>
	\$43,209.39
Total available fund.....	\$20,505.28
Total unavailable fund.....	27,763.87
	<hr/>
Total.....	\$48,269.15

Very truly yours,

WHITNEY NEWTON,
State Treasurer.

REPORT OF STATE AUDITOR.

To the President and Board of Regents of the University of Colorado:

GENTLEMEN—I submit herewith a statement of funds received to the credit of the University of Colorado from October 1, 1902, to October 1, 1904.

General Fund	\$188,781.86
Special Appropriation	36,090.54
Land Income	1,018.67
	<hr/>
Total.....	\$225,891.07

Warrants drawn in favor of the Treasurer of the University of Colorado between October 1, 1902, and October 1, 1904.....\$225,891.07

Respectfully submitted,

JOHN A. HOLMBERG,
Auditor of State.

TREASURER'S REPORT.

From October 1, 1902, to October 1, 1904.

RECEIPTS.

Cash on hand October 1, 1902.....	\$ 51,782.77
State Treasurer, General Fund.....	188,781.86
State Treasurer, Special Appropriation.....	36,090.54
State Treasurer, Land Income.....	1,018.67
Receipts from Medical School and Hospital.....	4,949.60

Receipts from University Secretary.....	\$ 3,366.29
Receipts from Secretary Board of Regents.....	32,495.42
Advanced First National Bank.	
National State Bank.	
Boulder National Bank.....	69,819.30
Due from E. J. Temple.....	200.00
	<hr/>
	\$388,504.45

DISBURSEMENTS.

Warrants paid from October 1, 1902, to October 1, 1904..	\$376,877.08
Cash on hand, General Account.....	\$6,427.37
Special Account	5,000.00— 11,427.37
Cash in hands E. J. Temple, former Secretary of Board of Regents	200.00
	<hr/>
	\$388,504.45

W. H. ALLISON,
Treasurer.

SECRETARY'S REPORT.

From October 1, 1902, to October 1, 1904.

Warrants issued in payment of expenses of the several Departments of the University during the biennial period, October 1, 1902, to October 1, 1904:

General Administration—Regents' service and mileage,	
President's and Secretary's salary, etc.....	\$ 14,361.56
College of Liberal Arts and School of Applied Science—	
Instruction and expense.....	84,097.74
Summer School—Instruction	1,619.00
School of Medicine—Instruction, apparatus, hospital and other expenses (largely reimbursed by medical tuitions and hospital receipts).....	27,366.14
School of Law—Instruction, library and other expenses, (partly reimbursed by tuitions).....	10,216.67
Preparatory School—Instruction and other expenses....	8,717.54
Library—Service, books, periodicals, binding and supplies	9,551.33
Biology—Books, apparatus, supplies.....	1,058.42
Chemistry—Books, apparatus, supplies.....	2,350.43
Economics—Books	183.91
English—Books	99.40

Geology—Books, apparatus, supplies.....	\$ 1,536.02
German—Books	55.03
Greek—Books	687.91
History—Books	576.03
Latin—Books	429.41
Literature—Books, supplies	697.85
Mathematics—Books, apparatus, supplies.....	753.10
Music—Books and supplies.....	72.95
Philosophy—Books, apparatus, supplies.....	188.78
Psychology and Education—Books, apparatus, supplies..	1,135.11
Physics—Books, apparatus, supplies.....	798.47
Romance Languages—Books	223.90
Civil Engineering—Books, apparatus, supplies.....	2,288.99
Electrical Engineering—Books, apparatus, supplies.....	4,751.89
Mechanical Engineering—Books, apparatus, supplies....	4,686.65
Buildings and Grounds—Salaries (janitors, heating and lighting service and care of grounds), repairs, light, fuel, insurance, horses, water rent, unclassified.....	26,232.59
Buildings and Grounds—New buildings, improvements on buildings and improvements on grounds. From October 1, 1902, to December 1, 1903. \$71,576.16 From December 1, 1903, to October 1, 1904. 62,689.14—	134,265.30
Furniture and Supplies.....	7,725.05
Printing	7,148.63
Stationery and postage.....	2,806.12
High School Inspection.....	\$ 1,832.95
Lectures by Faculty members.....	847.40
Advertising	835.63
Refund of fees and tuitions.....	666.65
General Unclassified Account (interest included).....	10,708.39
*Total.....	\$371,572.94
Warrants issued, not paid by October 1, 1902.....	7,225.26
Warrants issued, not paid by October 1, 1904.....	1,921.12
	<hr/>
	\$ 5,304.14

* September, 1904, salaries not included.

Warrants issued from October 1, 1902, to October 1, 1904. \$371,572.94

Warrants paid by Treasurer from October 1, 1902, to October 1, 1904. \$376,877.08

Respectfully submitted,

E. J. INGRAM,
Secretary.

LIBRARIAN'S REPORT.

James H. Baker, President of the Board of Regents, University of Colorado:

DEAR SIR—I have the honor to present herewith my report on the Library, covering the period from October 1, 1902, to October 1, 1904.

ADDITIONS.

The total number of volumes accessioned and placed in the Library during the two years is 6,392, derived from various sources, as follows:

Gifts (U. S. Publications)	1,095
Gifts (Miscellaneous)	1,540
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Total gifts	2,635
Binding	888
Purchased	2,869
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Total accessions	6,392

DONATIONS.

Gifts have been received, entered and acknowledged as follows:

Books	1,386
Newspapers	54
Pamphlets, College catalogues, etc.....	2,125
Maps, charts, etc.....	11
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Total.....	3,576
Donations shown in detail on pages 16-17.	

BINDING.

Periodicals (completed volumes)	858
New books (issued in paper)	830

Rebound	49
Newspapers	30
Total.....	1,767

SUMMARY.

Number of volumes reported October 1, 1902.....25,531

Additions—

By gift (U. S. Publications).....1,095

By gift (Miscellaneous).....1,540

Total by gift..... 2,635

By binding 888

By purchase 2,869

6,392

Total 31,923

Deductions—

Cancelled (lost and worn out) 123

Less found and returned..... 15

Total deduction..... 108

Total number of volumes in Library October 1, 1904.....31,815

Respectfully yours,

ALFRED E. WHITAKER,
Librarian.

INVENTORY OF UNIVERSITY PROPERTY.

The following estimates, taken from inventories recently made, are presented as fair approximations:

GROUNDS.

Campus, fifty-seven acres (estimated present value unimproved)	\$ 57,000.00
Improvements, as fences, grading, roads, walks, pipes, drains, trees, lake, bridges, athletic field.....	26,300.00
	<u>\$ 83,300.00</u>

BUILDINGS.

(Approximate cost of each.)

Main Building	\$ 37,300.00
University Cottage	6,700.00
Medical Building	9,000.00
Cottage No. 1.....	8,400.00
Cottage No. 2.....	3,800.00
Anatomy Building	2,500.00
Woodbury Hall	24,800.00
Hale Science Building.....	48,100.00
Engineering Building	47,000.00
Heating plant, boilers, pipes in ground, fan house.....	12,500.00
Observatory	300.00
Ice House	300.00
Stable and Shed.....	1,200.00
Chemistry Building	10,000.00
Gymnasium Building	6,000.00
Hospital, furnished	15,000.00
Library Building (not including extension of heating pipes in ground).....	75,500.00
	<hr/>
	\$308,400.00

FURNITURE, ETC.

Team, implements, tools, engineer's and carpenter's supplies, heating and electric supplies (value).....	\$ 2,669.00
Room furniture, as chairs, settees, desks, tables, movable cases, pictures, office furniture, dormitory and dining hall equipment, shades and janitor's supplies, gymnasium apparatus (value).....	16,381.00
	<hr/>
	\$ 19,050.00

LIBRARY.

Library (value)	\$ 50,000.00
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APPARATUS.

Biology	\$ 1,834.00
Chemistry	4,458.00
Civil Engineering	4,721.00
Comparative and English Literature.....	600.00
Electrical Engineering	9,223.00

Geology	\$ 1,985.00
German	20.00
Graphics	470.00
Greek	501.00
Hospital	2,753.00
Latin	20.00
Law	450.00
Mathematics	701.00
Mechanical Engineering	6,262.00
Medicine	4,499.00
Music	91.00
Physics	7,602.00
Psychology	953.00
	<hr/>
	\$ 47,143.00

COLLECTIONS.

Art	\$ 1,800.00
Biological	1,530.00
Geological and Mineralogical.....	2,860.00
	<hr/>
	\$ 6,190.00

SUMMARY.

Grounds	\$ 83,300.00
Buildings	308,400.00
Furniture, etc.	19,050.00
Library	50,000.00
Apparatus	47,143.00
Collections	6,190.00
	<hr/>
	\$514,083.00

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4-06

BIENNIAL REPORT
OF THE
REGENTS
OF THE
UNIVERSITY OF COLORADO



1904-1906

Fifteenth Biennial Report
OF THE
REGENTS
OF THE
UNIVERSITY OF COLORADO



BOULDER, COLORADO

October 1, 1906

UNIVERSITY OF COLORADO.

FIFTEENTH BIENNIAL REPORT OF THE REGENTS, 1904-1906.

To the State Superintendent of Public Instruction, and the Sixteenth General Assembly:

The Fifteenth Biennial Report, from October 1, 1904, to October 1, 1906, is herewith presented by the Regents.

INTRODUCTORY STATEMENT.

We refer to some leading points of the report under four heads: (1) Growth; (2) Recommendations of Departments; (3) Recommendations to the General Assembly; (4) Relations to the State.

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struction, apparatus, etc., pp. 9, 18, 20, 30; purchase of lands, p. 27.

The following are the important recommendations to the General Assembly: increase of income, p. 28; providing large building fund, p. 29; constitutional right to conduct two years of Medical School in Denver, p. 20; discontinuing the Preparatory School, p. 23; recognition of Arts diploma of the University for teaching, p. 13; passage of the "Geological Bill," favorably discussed in the last General Assembly.

The service of the University to the State may be inferred from facts presented throughout the Report, and in the Annual Catalogue and the Alumni Register: It represents the higher ideals of the State in scholarship, culture, and practical preparation for life; it provides higher education for Colorado students at a minimum expense; its atmosphere is natural, normal, democratic and healthful, and hence it prepares for good citizenship; it stands in the front rank in percentage of growth, in enrollment in proportion to population, and in standards which are everywhere recognized and bring credit to the State; its organization and curricula are modern, and it keeps in touch with educational progress; it is developing a reputable Graduate School, is making original contributions to science and literature, and publishes several scientific periodicals; it maintains high standards in training for the professions and positions of trust; its graduates are occupying many places of leadership and responsibility; it equips a large percentage of the teachers for the high schools of the State and many principals and superintendents; it does important work in inspecting, accrediting and building up the high schools, and invites conferences for discussion of common interests; it offers special opportunities to teachers and others through its summer session; it aids education and other public interests by frequent lectures; it is investigating local history; it lays a broad foundation for business life through its College of Commerce; it studies problems of commerce, industry, finance, government, legislation and sociology; it is beginning important scientific investigations in medicine; it adds to the regular course in Law, special subjects in Colorado Law; it offers work in sanitary science and in economic geology; through the engineering departments it prepares young men to develop the resources and build up the industries of Colorado.

DEPARTMENTS OF THE UNIVERSITY.

The departments of instruction in the UNIVERSITY OF COLORADO are comprehended under the following divisions:

I. COLLEGE OF LIBERAL ARTS.

Courses leading to the degree B. A.

II. COLLEGE OF COMMERCE.

Course leading to the bachelor's degree.

III. GRADUATE SCHOOL.

Courses leading to the degrees M. A. and Ph. D.; also
M. S., C. E., E. E., M. E.

IV. COLLEGE OF ENGINEERING.

Civil Engineering, leading to the degree B. S. (C. E.)

Electrical Engineering, leading to the degree B. S.
(E. E.)

Mechanical Engineering, leading to the degree B. S.
(M. E.)

Chemical Engineering, leading to the degree B. S.
(Ch. E.)

V. SCHOOL OF MEDICINE.

A four-year course leading to the degree M. D.

VI. SCHOOL OF LAW.

A three-year course leading to the degree LL. B.

VII. SUMMER SCHOOL.

VIII. COLORADO STATE PREPARATORY SCHOOL. (Separate Organization, Grounds and Building. Conducted by the University.)

ATTENDANCE.

The subjoined table shows growth in attendance:

Years.	Univ. Students.	Summer School Students.	Prep. Students.
1891-2	66		103
1904-5	685	60	415
1905-6	743	79	504
1906-7	850	98	525

DEGREES CONFERRED.

In 1905 and 1906 degrees were conferred as follows:

	1905	1906
College of Liberal Arts.....	41	64
Graduate School	11	12
College of Engineering.....	14	14
School of Medicine.....	6	16
School of Law.....	15	12
Honorary	3	2
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	90	120

The Colorado State Preparatory School graduated forty-eight students in 1905 and forty-two in 1906.

GRADUATES.*

The register of the graduates now shows the following figures:

College of Liberal Arts.....	428
Graduate School	82
College of Engineering.....	91
School of Medicine.....	150
School of Law.....	140
Honorary Degrees	17
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	908

GRADUATE SCHOOL.

There were 33 graduate students enrolled in the year 1904-5, and 37 in the year 1905-6. Higher degrees have been conferred upon 23 candidates.

In the year 1906 the degree Doctor of Philosophy was conferred upon:

Name.	Subject of Thesis.
Elijah Clarence Hills,	"A Study of New Mexican Spanish." Publication of the American Modern Language Association.
Heman Burr Leonard,	"On the Factoring of Composite Algebras." American Journal of Mathematics, Johns Hopkins.

*The graduates of the Colorado State Preparatory School number 552.

Name.	Subject of Thesis.
James Underhill,	"Areal Geology of Lower Clear Creek." Colorado Scientific Society, 1906.

In 1905 the degree Master of Arts was conferred upon:

Helen Jane Aldrich,	"The Three Dramatic Unities in Molière."
John Christian Bailar,	"Laboratory Notes on Ore Analysis." Privately printed.
Nancy Brown Blair,	"Women in the Pre-Shakespearean Drama."
Gideon Stanhope Dodds,	"The Brain of Plethodon Glutinosus." University of Colorado Studies, Vol. III, No. 2.
Daniel Clarence Jacobs,	"The Igneous Dikes in the Vicinity of Boulder." Privately printed.
Amandus Johnson,	"Plot Structure in the Plays of John Lily."
Matilda Krebs,	"The Arthurian Legend in Pre-Raphaelite Painting and Poetry." Privately printed.
Louise Marie Peters,	Translation of the Norman French "Mystère d'Adam."
James Underhill,	"Tables to Facilitate the Microscopical Analysis of Igneous Rocks."
	"Topography and Geology of a Part of the Evergreen Quadrangle, Colorado."
	Preliminary publication by the Colorado Scientific Society.

In 1906 the degree Master of Arts was conferred upon:

Ruby Lily Carstens,	"A Definition of Quaternions by Independent Postulates." Bulletin American Mathematical Society. University of Colorado Studies.
Luzerne Dwyer Fowler,	"Literary Criticism and History in the Greek Anthology."

Name.	Subject of Thesis.
Marie Theresa Gill,	"A Study of the Anemone (<i>Pulsatilla Hirsutissima</i>)."
Howard Bethel Jackson,	"Optical Properties of Crystals." To be published.
Carrie Elizabeth Orton,	"Roman Gardens."
Hanson Tufts Parlin,	"Dramatic Methods in the Roman Plays of Ben Jonson."
Charles Elmer Sparks,	"Development of the General Synod Lutheran Church in America." Lutheran Quarterly, Oct., 1906.
Bert Frederick Westmore,	"The Development of Plot in the Plays of Marlowe."
Velma Elizabeth Woods,	"Comparison of the Medea of Seneca with the Medea of Euripides."

In 1905 the degree Master of Science was conferred upon:

Howard Carlton Ford,	"The Pressure of Grain in Bins."
Fred Hutton Kroger,	"Laboratory Methods in Alternating Current Testings."

The attendance in the Graduate School has increased 67 per cent. over that of the preceding biennial period; the increase in the number of degrees conferred is 44 per cent.

Heretofore the work of the Graduate School has been largely in preparing candidates for the degree Master of Arts. A reference to the titles given in the biennial reports will show that many have been published as books or in standard periodicals. On the whole, the requirements for the Master's degree are greater than the average of the sixteen best American universities. The work for the Master's degree is completed in one or two years. The methods in use are fairly well adapted to this kind of work.

The University has wisely been very conservative in granting the degree Doctor of Philosophy. There are now several candidates who have completed the Master's degree and are in residence for the degree Doctor of Philosophy. Courses of graduate study running three or four years require thorough equipment and organization. An up-to-date graduate school must have a body—it may be a small body—of first-class men as a nucleus to set a standard of work. First-class men have no

difficulty in securing fellowships elsewhere; our own Masters enjoy the funds of Pennsylvania, Columbia, and Chicago. All the leading universities provide graduate scholarships and fellowships. Harvard pays \$29,000 yearly to graduates; Pennsylvania received \$500,000 in one sum for this purpose; Johns Hopkins and Clark, known mainly for their excellent graduate schools, have made their growth by liberal fellowships. As soon as possible the State should provide fellowships and scholarships for graduate students in the University of Colorado. A limited number of teaching scholarships is now provided, but usually the time for receiving a higher degree is lengthened because of teaching service required by the University.

The responsibility in granting the highest degree at an honorable standard demands unity in the graduate work. The school now requires the services of a permanent officer, a Dean appointed by the Board of Regents, to devote much time to perfecting the school. The Dean, in agreement with the President of the University, should appoint an executive committee or council, who shall make a thorough study of graduate schools, revise schedules of students, admit to examinations, maintain standards, and settle all matters of routine in co-operation with the Dean. The scholarship of the University is judged by the quality of work done in preparing students for higher degrees.

COLLEGE OF LIBERAL ARTS.

Faculty.

The important changes in the Faculty of the College of Liberal Arts during the past two years are as follows:

Mr. Robert W. Stevens resigned in September, 1905, and Mr. George M. Chadwick was appointed Instructor in Music.

Saul Epstein, Ph. D. (Zurich), was appointed Instructor in Mathematics in September, 1905, and made Assistant Professor of Mathematics in September, 1906. Since the Engineering Mathematics has been made a distinct engineering department, he holds a position in both Arts and Engineering Faculties.

Professor Frederic L. Paxson resigned as Professor of History in September, 1906, and James F. Willard, Ph. D. (Pennsylvania), was appointed Assistant Professor of History, as head of the department.

Assistant Professor George C. Taylor has been promoted to be Professor of English.

Mr. T. D. A. Cockerell, Lecturer in Entomology, has been promoted to be Professor of Systematic Zoology.

Miss Martha G. McCaulley, M. A. (Wellesley), was appointed Dean of Women to fill the place made vacant by the resignation of Miss Henrietta J. Meeteer, in September, 1906.

Charles B. Dyke, M. A. (Columbia), was appointed Instructor in Education in September, 1906.

Curriculum.

Important changes have been made in the Arts curriculum. The underlying idea is to facilitate intensive work; incidentally our requirements are made more nearly identical with those of the majority of the other state universities.

To attain the degree of Bachelor of Arts, a student must complete one hundred and twenty hours, including ten hours in English and twenty hours in a major subject to be chosen not later than the end of the Sophomore year.

All students in the Freshman year must take three hours of English each semester, and five hours each semester from the following groups:

- I. Mathematics.
- II. Classical Languages.
- III. Natural Sciences.

All Sophomores take two hours of English each semester unless excused by the department. All hours not implied in the above requirements are elective.

Credit will not be given for both beginning French and beginning German.

By an arrangement of electives, announced in the fall of 1905, it is now possible for a student to receive the two degrees, B. A. and M. D., in six years. This is in accord with the usage of several leading universities.

Great problems arise in our colleges from our elective system. Our College department has tried to minimize the difficulties by assigning an adviser to each student, and the plan is as successful as could be expected. This method, however, can have only a superficial effect, leaving the seat of the trouble entirely untouched. Many believe that an intelligent and reasonable group system, allowing plenty of room for individual

needs and abilities, should be introduced as soon as possible. During the last few years the preparation of the matriculating students has been noticeably improved, and, although something is still to be desired in this respect, the students who are encouragingly purposeful might draw greater profit from their college course under a group system.

Room.

Additional class rooms will be an absolute necessity in another year. The difficulty would be partly met if the Law School were provided with a building of its own. A new building for lecture rooms is much needed.

Summer School.

There have been two sessions of the Summer School since the last report. In 1905 the attendance was 79; in 1906 it increased to 98. The Faculty was made up of members of our regular staff and instructors from other standard institutions. Among the special lecturers giving courses were Professors Albert B. Hart and Paul H. Hanus of Harvard University.

There is a distinct demand for summer schools ably and honestly conducted by standard universities, substituting "for the spasmodic efforts of scattered agencies, a regular curriculum maintained by a responsible organization." The opinion of such men as Professor Hanus of Harvard and of many others best qualified to judge is that Colorado ought to have one of the two or three largest summer schools in the United States, on account of its superior location and its persevering adherence to the highest standards. Accordingly, in view of the advantage of location, of the economy of not leaving idle an expensive plant for a large part of the year, of the service that can be rendered the teachers of Colorado, and of an unquestioned general demand, it becomes a real question whether the University ought not to extend its Summer School from six weeks to ten, with a corresponding reorganization of the whole academic year into four quarters.

College of Commerce.

To meet the growing demand for a more tangible preparation for the larger phases of business activity, an intelligent grouping of courses around a nucleus of legal and economic subjects has been worked out and on this basis a College of Commerce has

been organized. A larger notice thereof is given under its own heading in this report.

The Department of Education.

The Department of Education is undergoing a reorganization and expansion consistent with the general growth of the University and adequate to the demands made upon it for teachers by the educational conditions in the State. Superintendents and school boards are uniformly seeking college graduates for teachers in the high schools. Two years ago eighty-three per cent. of the high-school teachers in Colorado were college graduates. This year's statistics are indicating an increase in this percentage. The record of the alumni of the College of Liberal Arts since 1882 shows that far more have engaged in the profession of teaching than in any other occupation, and the number is constantly increasing. For years it has been impossible for the High-School Committee to supply the demand made upon it for teachers by the school officials in the State. In the summer of 1904 it placed (including promotions) 54 of the University's graduates in responsible school positions in the State; in the summer of 1905 it placed 63 graduates in similar positions; in the summer of 1906 the number placed was slightly smaller than in the previous year on account of a lack of available material. A great majority of these teachers are in the high schools, though many are by preference working in the grades. There is a growing sentiment among city superintendents favoring high-school teachers who have done their preliminary teaching in the grades. There is, further, a growing demand for college graduates as grade teachers.

It is natural and fit that school officials should look to the University for their high-school teachers. It is only at a reputable college that the scholastic attainments now demanded of high-school teachers can be met. The normal schools can not meet them without duplicating the college at an immense expense, or offering merely pretentious work. For making secondary teachers it is wisdom and economy to add pedagogy to a college rather than add a college to pedagogy.

The amount of pedagogical work already offered by our department of education gives it a high standing in the estimation of superintendents who have employed our graduates as teachers either in the high schools or the grades. In addition to the

courses offered in The History of Education, The Science of Education, School Organization and Administration, Educational Psychology, Methods, etc., a very important course in Practice Teaching is offered. Affiliated with the department are the State Preparatory School and the public school system of the city of Boulder, where the practice teaching is done under normal and representative conditions. Dr. Henry White Callahan, Head Master of the State Preparatory School, is Director of Secondary Practice Teaching, and Charles Bartlett Dyke, Principal of the University Hill School, is Director of Elementary Practice Teaching.

The Department of Education is therefore endeavoring to increase its facilities to meet demands. The same departments in nearly all of the other state universities are having to do a similar thing. Some have already been organized as Colleges or Schools of Education, co-ordinate with the other Colleges of the University, as in Minnesota, Illinois, Texas, North Dakota and Missouri.

Although there is no statute specifically recognizing the diploma of graduation from our College of Liberal Arts as a teacher's license, it has been the custom of practically all of the superintendents in the first-class school districts of the State since 1899 so to treat it. The State school law does not allow such recognition in second and third-class school districts. The logic of such conditions is manifestly inconsistent. The diplomas of graduation from the following state universities (College of Liberal Arts) are accepted by law as teachers' certificates in their respective states: Arizona, California, Illinois, Indiana, Kansas, Michigan, Minnesota, Missouri, Montana, Nebraska, Nevada, New Mexico, North Dakota, South Carolina, South Dakota, Texas, Utah, Washington, Vermont, West Virginia, Wisconsin, and Wyoming. In at least seventeen of the states, the diplomas of graduation from any good college are accepted as teachers' certificates. In almost all of these cases the certificates are good as licenses to teach in any of the schools of the state, secondary or elementary.

The diplomas of fourteen of the state universities are good as licenses for life, of one for ten years, of three for six years, of two for five years, and of one for three years. In eight of the states the certificates presuppose no teaching experience; in the other states they are conditioned by teaching experience

varying in time from twenty weeks (Kansas) to ten years (South Dakota).

The Board of Regents of the University of Colorado will hereafter issue a special certificate to all students in the College of Liberal Arts who take the prescribed work in Education. This certificate will merely mean that its holder has done the amount of pedagogical work thought to be an adequate basis for efficient teaching. As the amount of work now recommended at least equals that required by any other state university whose diploma is a legal license to teach, we may reasonably expect that Colorado will favorably consider the claims of her university graduates.

As previously shown, in nearly every state mentioned above the university diploma is a license to teach in elementary as well as secondary schools. It is our belief that such license should be given in this State on the condition that the prescribed work in education be done and that the holder of the certificate shall have once obtained a county teacher's certificate by examination. Many superintendents of long experience are of the conviction that university graduates, by virtue of their scholarship and broad general outlook, are superior grade teachers. A maximum of knowledge and broad training, even with a minimum of pedagogical preparation, has its own advantages for the teacher.

COLLEGE OF COMMERCE.

The Regents have authorized a College of Commerce, which was opened September, 1906. Its purpose is to provide professional training for the practical demands of business. It aims to prepare men for careers in Domestic and Foreign Commerce and Banking, Insurance, Transportation, Trade and Industry, Journalism, and in branches of the Public Service, like the Consular, in which a knowledge of business is essential. The universities have had courses of study designed for the benefit of those students desiring to enter professional life. The universities and colleges have done all they could for the young man who wished to become a minister, teacher, lawyer, physician, journalist, or engineer. The College of Commerce is developed in response to the demands of (1) enlarged commercial operations, (2) the public service, (3) the desire of parents to give their sons a college education and at the same time prepare them

for their life work in business. The force of this third point should not be overlooked. At Yale University where an attempt has been made to collect statistics on the question, the number of graduates going into business careers was greater than the number entering any of the other callings. It is well known that the knowledge of the details of any particular line of business can be acquired only by actual experience. But the broad training given students in this department of the University will enable them to acquire the routine technicalities of any concern more easily than those whose minds have not been made flexible and acute by systematic training. They will thus the more readily assume positions of leadership and responsibility in the business world.

The curriculum of the College of Commerce is prepared with the following aims in view: (1) To furnish a certain amount of culture work which is the mark of college training. (2) To familiarize the student with the nature and workings of the industrial organism. This is attempted by studies in commercial geography, economics and history of commerce, transportation, banking, business organization and management. (3) To impart a certain amount of knowledge of the physical and chemical sciences and their applications to the industrial arts. (4) To give an acquaintance with the articles of commerce and the various industrial processes through which they pass. (5) To make the student acquainted with the principles of commercial law. (6) To supply an equipment in modern languages. (7) To afford an opportunity to acquire some knowledge of a particular line of trade.

The work of the College of Commerce is on the same high plane as that of the other undergraduate departments of the University. The entrance requirements are the same and an equal number of hours' work is required for the B. A. degree. The course is so arranged that by a proper choice of electives the student will become eligible for the LL. B. degree by two years' additional study in the Law School, and for the B. S. degree by two years' additional study in any of the engineering departments.

COLLEGE OF ENGINEERING.

During the past two years the College of Engineering has made very satisfactory progress. The number of students has

increased from 173 in 1904-05 to a registration at this date of 204, and a probable registration for the college year 1906-07 of 220. The number of instructors has been increased and additions have been made to the laboratories so that better instruction is possible. The courses in the different departments have been slightly modified to bring them in line with those of the best technical colleges, and the standards of instruction have been improved. Student engineering societies have been organized and the Associated Engineering Societies now publish an Annual called the University of Colorado Journal of Engineering. A chapter of Tau Beta Pi, the engineering honorary fraternity, has been granted to the engineering students. Graduates of the Engineering courses have been placed in good positions, and the credit and reputation of the University have thereby been advanced.

In the following discussion different items of importance are presented in detail:

Instructors.

Professor Henry B. Dates resigned his position as Professor of Electrical Engineering and Dean of the School in July, 1905, to accept a position as Professor of Electrical Engineering in Case School of Applied Science, Cleveland, Ohio. Herbert S. Evans, E. E. (Nebraska), was appointed to the chair of Electrical Engineering in September, 1905. Professor Milo S. Ketchum, C. E. (Illinois), Professor of Civil Engineering, was appointed Dean of the School in September, 1905.

John A. Hunter, M. E. (Pennsylvania State College), Assistant Professor of Mechanical Engineering, was promoted to a full professorship in Mechanical Engineering in June, 1906.

The following appointments as instructors were made in June, 1905: Howard C. Ford, M. S. (Colorado), Instructor in Civil Engineering; David R. Jenkins, B. S. (E. E.) (Colorado), Instructor in Electrical Engineering; and Jacob H. Wallace, B. S. (M. E.) (Illinois), Instructor in Engineering Drawing. The instructors above were reappointed for the college year 1906-07.

In September, 1906, Assistant Professor Saul Epstein was placed in charge of Engineering Mathematics.

Civil Engineering.

The instruction in this department has been materially improved and several important additions have been made to the

equipment in Surveying and to the Mechanics and Hydraulic laboratories. Several of the courses have been developed and the grade of instruction has been improved. The duties as Dean have taken much of the time of the head of the department and additional instructional help is needed.

Electrical Engineering.

The Electrical Engineering Department is in excellent condition. Additions have been made to the equipment, and the courses and the instruction have been materially improved. On account of the increase in the number of students, additional equipment is now needed.

Mechanical Engineering.

Work in foundry and forging is handicapped by not having a regular instructor in these subjects. At the present time this instruction is given by a practical mechanic who has had no teaching experience. The Mechanical Engineering Department needs additional instructors and apparatus.

Chemical Engineering.

The course in Chemical Engineering has been revised to bring it more in line with recent advances in chemical engineering. The registration in this department is very satisfactory, and to properly provide for the advanced classes additional instruction is needed in both the Mechanical and the Chemical Engineering departments.

Engineering Drawing.

The development in Drawing in the last year is probably the most important advance in the Engineering Department. The instruction has been improved until it is now equal to that of any institution in the country.

Work of the Dean.

Reports on all Engineering students are obtained from the instructors twice each semester, and students who are in any way deficient are called into the Dean's office for a conference. This has imposed a severe burden on the Dean, but has resulted in a marked improvement in the work of the students, and the system will be continued and improved. In order to straighten out the records it has been necessary for the Dean to personally make or check all records. This has caused dissipation of

energy and some method should be adopted that will leave the Dean free to direct the work of the School and his own department.

Buildings.

The present heating and lighting plant is inadequate and inefficient and a new heating and lighting plant is an immediate necessity. The dirt and dust from the furnaces and shops, together with the noise and vibration, make the old main part of the Engineering Building of little use for class and drafting rooms, and the shops should be moved to a separate building. The Engineering Building is now very much crowded and some arrangement will soon be necessary to provide class and drawing rooms. The building of new shops will provide the needed increase in room for some time.

Recommendations.

The report of the Dean of the College of Engineering recommends, besides engineering buildings, an increase of the salaries of instructors, the promotion of some of the present instructors, the addition of teaching force in some departments, a consulting room for the Dean, and further assistance in the Dean's office.

Enrollment.

The enrollment in Engineering for the past six years was as follows:

1901-02	103
1902-03	123
1903-04	142
1904-05	173
1905-06	176
1906-07	220 (estimated)

With the same growth, which we have every reason to expect, we shall have 400 students in Engineering in five years. To accommodate these students it will be necessary to at least double the present facilities.

SCHOOL OF MEDICINE.

Last year the Medical Department showed an increased attendance of twenty-five per cent. over the previous year. However, the increased attendance is not the only gratifying feature—many of the matriculants in the Medical Department have done

work in college which especially fits them for the study of medicine. Of the first-year class over fifty per cent. are taking the combined course which gives two degrees—B. A. and M. D.—in six years. This arrangement is being adopted by many of the leading universities and it is giving entire satisfaction. No doubt two years of college preparation will soon be required.

The faculty has been much strengthened and enlarged. Among the additions are several prominent Colorado specialists: Dr. Charles B. Lyman and Dr. Richard W. Corwin have been appointed Professors of Surgery; Dr. John M. Foster, Professor of Otology; Dr. Edward Jackson, Professor of Ophthalmology; Dr. Carroll E. Edson, Professor of Medicine; and Dr. Arthur L. Kennedy, Assistant Professor of Clinical Medicine and Therapeutics. Dr. Eugene H. Robertson, Professor of Pathology, has resigned; the vacancy is filled by Dr. Dessie B. Robertson, who has been given the professorship of Bacteriology, and by Dr. Oscar P. Johnstone, who has been appointed Professor of Pathology. Dr. Johnstone has for several years given his entire time to laboratory work, having held fellowships both in Cornell University and in Rush Medical College. Dr. William P. Harlow has been appointed to conduct a newly established course in laboratory diagnosis, which is offered to the third-year class. Dr. Harlow's title is Professor of Physical and Laboratory Diagnosis. Dr. Oscar M. Gilbert resigned the professorship in Anatomy to accept the position of Assistant Professor of Medicine. Dr. Martin E. Miles has been made Secretary of the Medical Department, and has been appointed to fill the vacancy made by Dr. Gilbert's resignation. Other appointments are Dr. Edward B. Trovillion, Instructor in Anatomy; Dr. William A. Jolley, Instructor in Pharmacognosy.

Several changes have been made in the Medical Building to accommodate the greater needs of the department. The south wing of the Medical Building has been converted into a laboratory for Pharmacology, Laboratory Diagnosis, and Neurology. A partition has been put in the large room on the second floor, converting it into two lecture rooms. Store rooms have been fitted up and provided with additional shelves. Opportunity is given for special work in Pathology and Laboratory Diagnosis by improvements made in two small rooms formerly used for consultation rooms. Several of the third and fourth-year classes are conducted in the hospital amphitheater, thereby giving better opportunity to care for dispensary cases.

The Medical Department is badly in need of both buildings and equipment. Since medicine is a rapidly developing science, these necessities increase more rapidly than the numerical growth of the school. Every available room in the Medical and Anatomical Buildings is now in use. More are needed not only for the regular courses, but for special work in the various branches of medicine. Room and equipment should be at hand for the students who wish to carry on research, and especially for those desiring to do graduate work. An animal house is needed, where the effects of the adulteration of foods and drugs can be studied.

There should be, in connection with the University, a state hygienic laboratory, for which a special appropriation would be necessary. The advantage of the climate of Colorado in many diseases has not been sufficiently studied; careful work along this line would, no doubt, be profitable to the State and its results would be far-reaching.

In order to stimulate the spirit of research there should be opportunities for students who are specializing along some particular line. At the present time the Medical Department should offer at least two fellowships.

It is to be hoped that in the near future permission will be given the University to conduct the last two years of the medical course in Denver. This would materially increase the clinical opportunities and strengthen the school. Since the Legislature represents the people of Colorado, we look to it to put our state medical school on a par with any of the eastern institutions, so that the students of Colorado will not find it necessary to go to eastern cities to complete their medical education.

SCHOOL OF LAW.

In September of this year James F. Willard, Ph. D. (Pennsylvania), was added to the resident professors of Law as Professor of American and English Constitutional History, in place of Professor Frederic L. Paxson, resigned, and Mr. James W. McCreery of Greeley, a practitioner of long experience at the Colorado bar, an acknowledged authority upon the subject of Irrigation Law, has for two years past regularly met the class in that topic.

The Law Department, since our last report, has sustained

a severe loss in the death of Professor Calvin E. Reed, for some years Professor of Appellate Practice and Procedure. His place has been supplied for two years by Mr. Ernest L. Williams, a graduate of the Law School, and for some years associated with Professor Reed in practice in Denver.

Professors John D. Fleming, Albert A. Reed, William H. Pease continue, with the addition of Professor Willard, as resident professors of Law; Dean John Campbell, Professor Edwin Van Cise, Professor William H. Bryant, Mr. Robert S. Morrison and Mr. James W. McCreery give work in regular course in the subjects of Corporations, Colorado Civil Code, the Law of Mining and Irrigation; there are also several special lecturers and instructors in other practical topics of the law. These names give assurance that the Law School will maintain a high degree of efficiency. This efficiency, we feel, will be in a degree further promoted by the Moot and Practice Court, for which this year increased facilities have been provided.

The course is based upon the case system, but remains a conservative combination of such system with text-book work and lectures. Such course, while national in its aim and scope, is yet of special value to students from Colorado and to all those who expect to practice in the arid and mining states.

The qualifications for admission to the Law School remain the same: Age of 18 years, good moral character, and the possession of at least a high-school education or its equivalent, which equivalence is tested by special examination. It is gratifying to observe a tendency toward a more advanced age in the students entering, as well as toward the acceptance of the advantages offered by the University for a more liberal education before entering upon legal studies. More students each year appear to be coming from the upper classes of the Liberal Arts College of the University, or of other colleges, and many bear B. A. degrees. The average age of those entering during the two years preceding this report has been about twenty years and two months. This year it will perhaps be still higher.

The Law Library has been reorganized and hereafter will be under the constant supervision of a skilled librarian. Besides its regular accessions it has received additions in the gift from Judge Moses Hallett during the present year of some 250 volumes of legal treatises and reports of the value of \$800. Judge

Hallett was the first Dean of the Law School and manifests a continued interest in its progress.

A Law School building is a special need at this time. It is probable that by the next biennial report the Law School will be in its own home upon the University campus.

It is a common observation that legal education has come to be largely a matter of instruction in law schools. The examinations for admission to the Bar of Colorado since our last report confirm this statement. At the June, 1906, examinations, of the forty-four candidates for license to practice law in Colorado, but six had come up from private offices.

The School maintains its membership in the Association of American Law Schools, an association of most of the leading law schools of the country, formed in 1900 for the purpose of elevating and maintaining the standard of legal education in all the states. At the last annual meeting of the association, held at St. Paul, Minn., in September of this year, the Law School had a representative. The reports and proceedings of these meetings furnish valuable data upon the subject of legal education throughout the country.

PREPARATORY SCHOOL.

Last year the enrollment of the Preparatory School advanced to 504. This crowded the building to such an extent that the work was carried on under the greatest difficulty. An addition to the building was begun in May, which will give ample room for an enrollment of more than 600. The first-year class is now divided into six sections.

A few changes and additions have been made in the corps of instructors since the last report. Mr. Warren F. Bleeker has the Chemistry and Physics; Mr. Bert F. Westmore, part of the English; Miss Ruth Dalziel, Drawing; Mrs. Margaret H. Helms, Greek; Miss Laeta Elden, part of English and of History; Miss B. Ines Stearns, Physical Culture; Mr. Clifford S. Dunham, Music. There are at present 16 teachers in the school.

Of the new English Course two years are now offered, three years will be given next year, and the full course thereafter.

The course in Art has been materially enlarged. At present a student can elect any work in Art which should be offered by a secondary school.

The time has come when the continuance of the State Preparatory School must be considered. It is well known that for many years the School Board of Boulder has united with the Regents in support of the School. The city has paid two-thirds of the expenses, and the University one-third. The city has furnished the building and the University has paid one-third of a fair rental of the building as part of its share of the expenses. The union effort has made a far better school than either the University or the city alone could have maintained, and the relation of the two interests has been most harmonious and helpful. But there is no longer a strong reason for maintaining a Preparatory School as a department of the University, and the size of the town now makes it possible to conduct a first-class high school independently. Knowing these conditions, last June the Regents asked the School Board to report their views to the Regents in September. At the September meeting the two boards met for a discussion of the whole matter and informally agreed that the time was ripe for the University to drop the Preparatory School and for the town to maintain an independent high school. Accordingly the Regents recommend that a law be passed by the next General Assembly to the effect that the Regents be no longer required to maintain a preparatory department.

RELATION TO THE HIGH SCHOOLS.

During the past two years, through the general efforts of the University faculties and the special visits of the Inspector of High Schools, the relations between the University and the high schools of the State have become more intimate and sympathetic. The attitude of co-operation on the part of superintendents, high-school principals and high-school teachers throughout the State is very gratifying. The sixteen units of study which were adopted by the University and High-School Conference held in Boulder, December 12, 1903, have been generally accepted by the high schools as the basis of their courses of study. At present forty-four of the high schools of Colorado and one of Wyoming are upon the University's accredited list. The high schools at Montrose, Gunnison, and Fruita have been added to the list since the publication of the University of Colorado Catalogue for 1905-1906. There are several other high schools in the State that will soon be prepared for the Uni-

versity's recognition, an honor sought by all of the high schools, and a powerful stimulus toward better equipment in every way and a higher grade of efficiency in the high schools.

The growing demand from school boards for University graduates as teachers in the high schools is significant. During the summer of 1905 the University succeeded in securing the appointment of sixty-three of its graduates to important positions in schools of the State, the great majority of appointments being to high-school positions.

The steady growth in general intelligent interest in the University is significant of the fact that the people are rapidly becoming conscious of the vital importance of their own University and its relation to the public welfare.

The Annual High-School Day conducted at the University in May has continued to grow in popularity and attendance to such an extent that, in order to regulate the size of the crowds, the invitations sent out by the University have been limited to high-school graduates, their parents and teachers. The Literary Contest for girls added two years ago has proved to be a valuable feature of the occasion.

PHYSICAL CULTURE AND ATHLETICS.

Since the appointment in 1903 of a Director of Physical Culture, the entire charge of gymnasium instruction and the coaching and training of all athletic teams has been in his hands. Classes in gymnasium work for both men and women are daily conducted. The nature of the work is mainly along hygienic and corrective lines, and individual cases are specially dealt with. Anthropometric measurements based upon the reports of the American Association for Physical Education are made upon each student doing regular work in the gymnasium; together with this the Intercollegiate strength test is given and an examination of the vital organs is made. Before being allowed to compete on any athletic team the candidates are examined, with special reference to the heart and lungs, by a medical attendant and by the Physical Director.

It is hoped that in the near future a new and larger gymnasium will be erected, so that the University may require of its students the regular courses in physical training, which are now carried on with so much success in many of the best universities of the country.

The Cross-Country Club, organized in 1903, was a successful and most valuable aid in the training of well developed athletes, and it will be continued. It is hoped that in the future a regular autumn intercollegiate meet may be arranged.

The football team has continued to make a clean record for honorable sportsmanship. Games with the state universities of Nebraska, Kansas, Utah and Wyoming, and with the other institutions of Colorado have been played. For the season of 1906 six intercollegiate games have been arranged.

Track athletics have been enthusiastically supported, and this branch of sport should be heartily encouraged. Dual contests with the state universities of Nebraska, Kansas and Utah, and annual meets with the colleges of Colorado have been held.

Baseball and basketball have also received their share of attention, and numerous intercollegiate games with both State and local institutions have been played.

The University has been the first institution in the State to join the new National Intercollegiate Athletic Association, thus placing itself in line with those who are working for the elimination of the objectionable features of athletics and for the maintenance of a high standard of sportsmanship in our universities.

The following recommendations by the Board of Control of the University were approved at a recent joint meeting of the Faculties:

The Committee recommends:

(1) That the University adopt the football rules compiled by the National Amalgamated Committee.

(2) That the University join the Intercollegiate Athletic Association of the United States, and that the University put itself on record not only as subscribing to, but as strongly favoring Article 6 of the by-laws of this association, which refers to

- (a) Proselyting;
- (b) Amateurs;
- (c) Students in good standing;
- (d) Unsportsmanlike conduct.

The Committee also recommends that the University adopt the following eligibility rules of Article 7 of the by-laws:

Rule 2 of by-laws, article 7—"The player is ineligible who has in any way accepted money for athletic services."

Rule 3 of by-laws, article 7—"No player may be in any way whatever paid for his services; that is, paid for playing."

Rule 4 of by-laws, article 7—"A player cannot play longer than four years."

Rule b of by-laws, article 6—"A player must be an amateur in the recognized sense of the word."

The Committee recommends the following special rules for the University of Colorado:

(1) A student coming from another institution cannot play, if he played the previous year in the other institution.

(2) If a player has played summer baseball he must furnish three affidavits stating that he has received no money for such play.

(3) Every player must be taking at least two-thirds of the work required in his school and class, and "be up" in his work.

The control of athletics still remains in the hands of a Board of Control composed of three members of the Faculty, acting with the President and Vice-President of the Athletic Association. This plan proves well in practice.

BUILDINGS AND GROUNDS.

The Chemistry Building, including all laboratory fixtures, is now in process of completion at a cost of \$30,545. The west wing, erected several years ago, with laboratory fixtures, cost about \$10,000.

Minor changes have been made in the Medical Building, Anatomy Building, and Science Building, for better accommodation of classes and laboratories. The first floor, northeast room of the main building, has been repaired and furnished as the Secretary's office. Last summer gas pipes were laid to several buildings and the laboratories will now be supplied with gas from the city plant. The cost was \$956.00. The laboratories hitherto have used gasoline at a disadvantage in convenience and expense.

A hockey field was graded a year ago for the use of the women students and a second tennis court was built near the cottages. The athletic field was enlarged to the north and the west last spring. The lawn of the quadrangle has been extended on each side to the buildings, the ground recently purchased has been fenced and improved, the roads have been repaired, and new trees have been planted.

Two acres of land adjoining the campus on the southeast have been purchased for \$1,770.

The athletic field must be removed within a few years and means should be taken to secure land in the vicinity of the University adequate to all future needs for outdoor games.

Plans for the future improvement of the grounds and location of buildings are now under consideration by the Regents. Mr. William W. Parce has been appointed Landscape Architect for the University.

Until last year the University Dining Hall was conducted, under lease, by private parties. In September, 1905, the Dining Hall was given to the students for a University Dining Club. The students take the responsibility, under supervision, and receive the advantages of their economy. The club is conducted by a student committee; a faculty committee supervises the student committee.

NEEDS.

The annual expenditure of the University for the past two years, aside from new buildings and ground purchased, has averaged \$152,737.90. The running expenses at present are about \$165,000 per year, an increase due to the larger attendance and greater demands. The total income of the University from all sources is \$165,421.22 per year. It is evident no margin is left for growth or for the very large expenditure for buildings which must be made yearly for many years to come. The pressing need for room and facilities led the Regents to make a somewhat extended canvass of the State for a building fund, but as yet with no complete success of any proposition presented, although certain promises have been made contingent upon the realization of a certain amount. The State yet owes the University \$45,000, \$5,000 of which dates back to the Governor Thomas emergency loan, and \$40,000 of which constitutes the Governor Peabody emergency loan authorized to cover the loss of \$40,000 appropriated by the Fourteenth General Assembly but never paid. This unpaid debt of the State to the University leaves the University with a large deficit and a large expense for interest. The low valuation of the taxable property of the State keeps the income from the two-fifths mill at a minimum and no efficient valuation law has been favorably considered by the General Assembly, although several plans

have been proposed. Many believe that all the State's interests demand a larger income for the State's use. When we see state universities with grounds valued at two millions, buildings at two and a half millions, equipment at nearly a million, income at about a million, and a rate of one full mill, we must believe that the University of Colorado is not receiving the support due even relatively when the size and age of the institution are considered in comparison with the older and larger universities.

As shown in the reports of the various schools and departments, there is a rapidly growing need of instructors, machinery, apparatus and books; also of means to conduct investigations in the Engineering and Medical Schools, to establish fellowships, to develop the Graduate School and the Summer School. The regular income of the University for current expenses should be materially increased.

A still greater need is that of room. The Law School has no place of its own and is occupying rooms belonging to the science departments, and now demanded by them. The auditorium now in use will not seat at one time one-half of the students. The heating plant is inadequate and a new plant should be installed. A woman's dormitory, including general reception rooms for all the women of the University, is demanded. The library building as yet has no space for departmental work and is already crowded for stack room. The building should be completed. The administration and lecture building (the "Main Building") is small and the structure insecure, and it should be replaced at once by another of more than double the size. Every science department is crowded and an additional science building is necessary. A scientific museum is demanded for room and for the safe preservation of existing collections. The rapidly growing College of Engineering needs the unbuilt wing of the present structure. Larger engineering shops must be provided. A new anatomy building is asked for the Medical School. The present rooms do not provide half the required space. The gymnasium, built when the University was very small, is not one-fourth large enough for present use. It furnishes the only space for various University assemblies and functions. Extensive improvements on the grounds should be made, and lands for future use adjoining, or in the vicinity of the University, should be purchased before the price is further increased.

To sum up:

Income.

A substantial increase in regular income to meet need of instructors, machinery, apparatus and books; also to conduct investigations in the Engineering and Medical Schools; to establish fellowships; to develop the Graduate School and the Summer School.

Buildings.

	Estimates.
Law Building	\$ 50,000
Auditorium	75,000
Heating, Lighting, and Power Plant.....	50,000
Woman's Dormitory and Central Building.....	50,000
Library Wings	100,000
Main Building (Lecture and Administration).....	200,000
Science Building	50,000
Museum	30,000
Engineering Wing	25,000
Engineering Shops	25,000
Anatomy Building	15,000
Gymnasium Building	25,000
Grounds (purchase and improvements).....	25,000

The University of Colorado will need a million dollars for buildings within a few years; in fact, needs it now, and no appropriation the coming year, however generous, can nearly meet present wants. Friends of the State institutions have suggested that a constitutional amendment, providing an additional mill to be used exclusively for buildings for these institutions, might well be considered.

When the Legislature doubled the mill-rate, it was the general expectation that this measure would provide for the support and growth of the University for several years. It should, therefore, be further noted here why the University is again coming to the Legislature for large appropriations. At the time of the increase of the mill-rate everybody thought the State valuation of property for taxable purposes would advance materially from year to year, whereas it has remained nearly stationary in the face of a great development of the wealth of the State. And again, the growth of the University has exceeded the expectations not only of the Legislature, but of those directly

connected with its work. What a few years ago was thought to be provision for prospective enlargements, is now inadequate even for present necessities. With Faculty overworked, valuable collections poorly housed, apparatus inadequate, classrooms crowded, equipment in all lines overtaxed or outgrown, and with nearly a thousand students using accommodations planned for hardly more than six hundred, and every student eager for the training which the State has in its organic law pledged itself to provide, an emergency is presented which it is believed the Legislature will not be slow to appreciate.

REPORT ON BUILDING FUND.

The Thirteenth General Assembly voted a special appropriation with the understanding that \$40,000 thereof should be devoted to a library building; the Fourteenth General Assembly increased the mill rate to two-fifths with the proviso that \$100,000 should be spent on buildings the first three years. This bill was signed April 1, 1903. Consequently up to December, 1906, the University was required to put \$140,000 into buildings, \$40,000 of which should be for a library building. At the time the second bill became a law \$16,366.34 had been expended on a library building which ultimately cost about \$80,000. Since the signing of the second bill, up to October 1, 1906, \$111,013.92 has been expended for buildings (not including \$12,271.29 for repairs), and \$19,448 in addition is contracted on the Chemistry Building, which amount will doubtless be paid before December 1, 1906. A tabulated statement of the above is as follows:

On library previous to passage of two-fifths mill with proviso	\$ 16,366.34
On buildings since passage of two-fifths mill.....	111,013.92
Remaining on Chemistry Building contract and pay- able before December 1, 1906.....	19,448.00
	<hr/>
Total	\$146,828.26
Required to spend on buildings before December 1, 1906	\$140,000.00
Spent, including contract named above.....	146,828.26
	<hr/>
Balance above requirements of law.....	\$ 6,828.26

The above expenditures have been chiefly on Library Building, addition to Engineering Building, Chemistry Building. Since April 1, 1903, seven acres of land added to Campus, and improvements on grounds.....\$ 23,666.73

GIFTS.

Previous reports have recorded gifts valued at \$48,510.00
Gifts during the past two years are as follows:

Edwin B. Hendrie, Denver, various University interests.	\$ 100.00
Philo S. Bennett, through William Jennings Bryan, for annual prize for best essay on the principles of free government	400.00
Class of 1904, University of Colorado, painting by Charles Partridge Adams	125.00
Class of 1905, University of Colorado, library clock.....	60.00

Museum.

Mr. D. M. Andrews, Boulder, land shells and fossils.....	2.00
Mr. Luther Beal, Boulder, fossil mammoth tooth.....	5.00
Prof. Arthur E. Beardsley, Greeley, molluscs.....	2.00
Mr. Ellsworth Bethel, Denver, molluscs.....	3.00
Mr. Ellsworth Bethel, Denver, fungi.....	25.00
Mr. Harry Clatworthy, Boulder, molluscs and fossils...	10.00
Prof. Theodore D. A. Cockerell, Boulder, land shells....	9.00
Mr. Frank Coulter, Boulder, fossils.....	3.00
Mr. Albert Dakan, Longmont, land and fresh water molluscs and fossils.....	8.00
Miss Elizabeth Downer, Boulder, fossils.....	1.00
Dr. George C. Emery, Boulder, two slabs Wyoming sandstone with fossil footprints.....	15.00
Mrs. Maud C. Gardiner, Boulder, Petosky stone and marble specimens from Italy.....	3.00
Prof. Russell D. George, Boulder, fossils.....	5.00
Mr. Simon Guggenheim, Denver, "Guggenheim Biological Collection"	1,000.00
Dr. William P. Harlow, Boulder, Indian hammers from copper pits, Lake Superior.....	5.00
Capt. J. J. Harris, Boulder, molluscs and fossils.....	5.00
Hon. Junius Henderson, Boulder, land, fresh water and marine shells	5.00

Mr. Frank H. Hopkins, Meeker, molluscs and fossils....	5.00
Prof. A. E. Kenyon, Florence, molluscs.....	2.00
Mrs. Nelson, Kidder, Iowa, fossils.....	1.00
Mr. George C. Pollock, Boulder, fossils.....	1.00
Mr. Sievert R. Rohwer, Boulder, molluscs.....	2.00
Smithsonian Institution, Washington, D. C., by exchange, fossils	25.00
Mr. D. W. Spangler, Longmont, fossils.....	3.00
Mr. James Underhill, Idaho Springs, fossil trilobite.....	5.00
Miss Edna Voight, Boulder, molluscs.....	1.00
Mr. Hugh F. Watts, Boulder, molluscs and fossils.....	5.00
Mrs. West, Boulder, antlers, skull, nest, Indian mortar, etc.	10.00

Biology.

Mrs. Maud C. Gardiner, Boulder, models.....	150.00
Mrs. Maud C. Gardiner, Boulder, wood specimens.....	50.00
Various students, plant and animal specimens.....	
Mr. Hugh F. Watts, Boulder, mounted birds.....	12.00

Economics and Sociology.

Commissioner of Labor, Albany, N. Y., reports, 12 vols...	18.00
Commissioner of Labor, Boston, Mass., reports, 8 vols...	12.00
Interstate Commerce Commission, Washington, D. C., Railroads in the United States, 3 vols.....	4.50
Librarian, Library of Congress, Washington, D. C., re- ports, 6 vols.	9.00
National Metal Trades Association, Cincinnati, Ohio, The Open Shop, permanent subscription.....	25.00
National Metal Trades Association, Cincinnati, Ohio, bound volume of The Open Shop for year 1902.....	3.00
New York State Historian, Albany, N. Y., reports, 5 vols.	7.50

Geology.

Mr. Charles I. Anderson, Idaho Springs, minerals from Idaho Springs	2.00
Mr. Robert T. Ashley, Ouray, rock specimens from Ouray	2.00
Dr. J. Raymond Brackett, Boulder, relief map of the world, on Mercator's projection.....	40.00
Mr. Elwin M. Caley, Littleton, specimen calaverite.....	10.00
Mr. George L. Cannon, Denver, wood jasper from Denver formation	3.00

Prof. Russell D. George, collection of Arizona ores (presented to University on payment of \$50 expenses)...	175.00
Prof. Russell D. George, collection of Butte, Montana, ores and rocks	40.00
Mr. Claude Compton, Boulder, ores.....	2.00
Mr. Ralph D. Crawford, Boulder, ores from Argentine Pass	2.00
Mr. James Grieve, Salt Lake City, cryolite, etc., Greenland	1.00
Mr. Simon Guggenheim, Denver, mineral collection....	1,000.00
Dr. William P. Harlow, Boulder, collection of ores and rocks, Bisbee, Arizona.....	15.00
Dr. William P. Harlow, Boulder, mineral specimens, ores etc.	5.00
Mr. Horace B. Holmes, Boulder, sylvanite specimen....	1.00
Mr. D. Kennedy, Georgetown, precipitate of native copper	1.00
Mr. H. K. Miller, Georgetown, stalactite and calcite crust, Georgetown, Colorado.....	4.00
Minerals from World's Fair, St. Louis.....	150.00
Prof. Francis Ramaley, Boulder, specimens of moonstone, Japan	3.00
Mr. Neal Randall, Boulder, ten mineral specimens.....	4.00
Mr. James Underhill, Idaho Springs, rock specimens from Idaho Springs.....	5.00
Mr. Harry V. Welch, Boulder, minerals.....	6.00
Mr. Worth L. Wiswall, Salt Lake City, Utah, minerals from Utah	3.00
Mr. Rene B. Wright, Lake City, mineral specimens.....	6.00

Electrical Engineering.

American Smelting & Refining Co., Denver, two Standard Electric Co. series arc lamps.....	10.00
American Smelting & Refining Co., Denver, two Western Electric Co. series arc lamps.....	10.00
American Smelting & Refining Co., Denver, one Manhattan multiple arc lamp.....	5.00
American Smelting & Refining Co., Denver, one Helios alternating multiple arc lamp.....	10.00
American Smelting & Refining Co., Denver, two Thompson series arc lamps.....	10.00

American Smelting & Refining Co., Denver, one Thompson form "D".....	10.00
American Smelting & Refining Co., Denver, one 20-light brush series arc machine.....	125.00
General Electric Co., Schenectady, N. Y., one framed photograph of electric locomotive.....	3.00
Western Electric Co., Denver, one lot telephone apparatus	10.00
Western Electric Co., Denver, one sample fuse board...	5.00

Civil Engineering.

Alpha Portland Cement Co., New York, N. Y., one bbl. Portland cement	3.00
American Bridge Co., New York, N. Y., twenty lantern slides	10.00
American Bridge Co., New York, N. Y., plans and photographs of bridges and buildings.....	50.00
Illinois Steel Co., Chicago, Ill., one bbl. Portland cement	3.00
Iola Cement Co., Iola, Kansas, one bbl. Portland cement	3.00
King Bridge Co., Cleveland, Ohio, two pictures.....	10.00
J. George Leyner Engineering Works, Denver, one 3-inch Water Leyner drill.....	150.00
J. George Leyner Engineering Works, Denver, one 1½-inch Rock Terrier Leyner drill.....	100.00
J. George Leyner Engineering Works, Denver, one drill column	25.00
Minneapolis Steel & Machinery Co., Minneapolis, Minn., plans and photographs of buildings.....	20.00
National Meter Co., New York, N. Y., water meters.....	10.00
Portland Cement Co., Portland, Colo., one-half bbl. Portland cement	1.50
Phoenix Bridge Co., Phoenixville, Pa., two pictures.....	10.00
Queen & Co., Philadelphia, Pa., one picture.....	5.00
A. E. Robinson, Bridge Engineer, Santa Fe Ry., Chicago, Ill., set of plans of Santa Fe bridges.....	50.00
Sandusky Portland Cement Co., Sandusky, Ohio, one bbl. Portland cement	3.00
St. Louis Exposition, specimens of clay products.....	50.00

Mechanical Engineering.

Bonner Mfg. Co., Chrisman, Ill., three Victor pipe wrenches	4.00
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Buckeye Engine Co., Salem, Ohio, one Buckeye engine (cut in section).....	150.00
Buffalo Forge Co., Buffalo, N. Y., one Buffalo steam pump	125.00
Bullard Wrench Co., Providence, R. I., one Bullard pipe wrench	1.00
Cameron Steam Pump Co., New York, N. Y., one Cam- eron steam pump.....	100.00
M. T. Davidson, Brooklyn, N. Y., one Davidson steam pump	125.00
Detroit Lubricator Co., Detroit, Mich., one Detroit lubri- cator (cut in section).....	8.00
Garlock Packing Co., Palmar, N. Y., pictures, blue prints, charts, packing samples, etc.....	30.00
Green-Tweed & Co., New York, one Rochester automatic lubricator	10.00
Hanger-Hyatt Roller Bearing Co., one roller bearing....	10.00
Hess-Bright Mfg. Co., Philadelphia, Pa., four ball bear- ings	25.00
Jenkins Bros., Chicago, Ill., two Jenkins valve seats and one Jenkins globe valve.....	2.25
Keasley & Matison Co., Anberly, Pa., one set asbestos samples	2.00
Lunkenheimer & Co., Cincinnati, Ohio, one Lunkenhei- mer display rack.....	50.00
Lunkenheimer & Co., Cincinnati, Ohio, one Lunkenhei- mer automatic lubricator.....	10.00
Lunkenheimer & Co., Cincinnati, Ohio, one pop safety valve (cut in section).....	10.00
Lunkenheimer & Co., Cincinnati, Ohio, one No. 4 auto- matic injector	12.00
National Meter Co., New York, N. Y., one Crown water meter (cut in section).....	10.00
Neptune Meter Co., New York, N. Y., two Neptune water meters (cut in section).....	20.00
Richardson Lubricator Co., Milwaukee, Wis., one Rich- ardson automatic lubricator.....	10.00
The Hancock Inspirator Co., Chicago, Ill., one No. 12½ Hancock inspirator	12.00
The Hancock Inspirator Co., Chicago, Ill., one No. 4 U. S. injector	12.00

The Hancock Inspirator Co., Chicago, Ill., one No. 3 Chicago injector	12.00
The Hancock Inspirator Co., Chicago, Ill., one No. 3½ Desmond injector	12.00
The Hayden Derby Mfg. Co., Chicago, Illinois, one No. 5 Metropolitan injector.....	12.00
Rumsey Co., Seneca Falls, N. Y., one hydraulic ram....	11.00
Thompson Meter Co., one Lambert water meter (cut in section)	10.00
Westinghouse Air Brake Co., Pittsburg, Pa., one engin- eer's valve (cut in section).....	40.00
Westinghouse Air Brake Co., Pittsburg, Pa., one Tripple valve (cut in section).....	40.00

Physics.

Prof. William Duane, Boulder, one-half the salary of the mechanic and special apparatus needed in re- search work	125.00
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Law Library.

Judge Moses Hallett, Denver, collection of books for Law Library (value \$800.00, included in report of Library gifts).	
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 \$5,323.75
Library.**Books. Pamph. Maps.**

Library gifts; also reported on page 51:

Alabama Geological Survey.....	2	11	
American Electrochemical Soc..	5		
American Institute of Technology	5		
Ayer, Prof. Charles C.....	6		
Baker, President James H.....	110	179	
Brackett, Prof. J. Raymond.....	43		
Brady, Frank		22	
Bryant, William H.....		17	
Carnegie Institution	15	32	
Chicago Public Library.....		12	
Cole, Louis M.....			1
Colorado (State Officials).....	10	84	
Colo. State Agricultural College.	1	22	
Craig, Dr. Stuart.....	27		
Denver Public Library.....	2		

	Books.	Pamp.	Maps.
Ekeley, Prof. John B.....	44	39	
Emch, Prof. Arnold.....	16	41	
Epsteen, Prof. Saul.....		8	
Fenneman, Prof. N. M.....	41		
Garcia, Artura	3		
Gardiner, Mrs. Maude C.....	42	18	
Georgia Geological Survey.....	2		
Giffin, Dr. L. M.....		14	
Guggenheim, Simon	8		
Hallet, Judge Moses.....	261		
Healey, A. E.....	13		
Hellems, Fred B. R.....		26	
Henderson, Judge Junius.....	1		
Hunter, Prof. John A.....	2		
Iowa Geological Survey.....	11		
Iowa Historical Dept.....	5		
Jackson, B. H.....	8		
Ketchum, Prof. M. S.....	3	2	
Library of Congress.....	20	22	
Maryland Geological Survey....	11		
Miles, Dr. Martin E.....	6		
Missouri Bureau of Geology....	3		
Moore, George R.....	12		
North, Judge J. M.....	908		
Ohio Geological Survey.....	4		
Paxson, Prof. Frederic L.....	83	15	
Ramaley, Prof. Francis.....		2	
Remington, Hugh P.....	8		
Rippon, Prof. Mary.....	10	6	
Smithsonian Institution	12	40	
South African Philosophical Soc.	6		
Teller, Hon. Henry M.....	5		
United States (various depart- ments)	600	574	110
University of Chicago.....	11	65	
University of Missouri.....		45	
University of Pennsylvania.....	18		
Washington Academy of Science	6		
Miscellaneous	152	2,143	
Total	2,561	3,439	111
			\$1,800.00
			<u>\$7,123.75</u>

Gifts previous to 1896.....	\$27,207.00
Gifts, 1896-1898	11,556.00
Gifts, 1898-1900	7,042.00
Gifts, 1900-1902	756.00
Gifts, 1902-1904	1,949.00
Gifts, 1904-1906	7,123.75
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Total	\$55,633.75

REPORTS SUBMITTED.

We submit herewith the Pay Roll of the University, Secretary's Fee Report, Report on Permanent Fund, Report on University Lands, Report of State Auditor, Treasurer's Report, Secretary's Report, Librarian's Report, Inventory of Property.

Respectfully submitted,

WILLIAM H. BRYANT,
FRANK E. KENDRICK,
OSCAR J. PFEIFFER,
WILLIAM J. KING,
HAROLD D. THOMPSON,
THOMAS D. BAIRD,
Board of Regents.

JAMES H. BAKER,
President.

EDWIN J. INGRAM,
Secretary.

APPENDIX.

PAY ROLL OF THE STATE UNIVERSITY.

Administration

James H. Baker, M. A., LL. D., President.....	\$ 5,000.00
Edwin J. Ingram, B. A., LL. B., Secretary Board of Regents	900.00
Fred E. Hagen, B. A., Secretary.....	900.00
Ernest L. Rhoads, Assistant Secretary.....	180.00
Katharine Kalene, Stenographer.....	540.00
Extra clerical help in Registrar's office.....	250.00
	<hr/>
	\$ 7,770.00

College of Liberal Arts.

Fred B. R. Hellems, Ph. D., Dean, Professor of Latin...	\$ 2,400.00
Mary Rippon, Professor of the German Language and Literature	2,000.00
J. Raymond Brackett, Ph. D., Secretary of the Graduate Faculty; Professor of Comparative and English Literature	2,500.00
Ira M. DeLong, M. A., Professor of Mathematics.....	2,500.00
Charles C. Ayer, Ph. D., Professor of Romance Languages	2,200.00
William Duane, Ph. D., Professor of Physics.....	2,200.00
George Norlin, Ph. D., Professor of Greek.....	2,100.00
Francis Ramaley, Ph. D., Professor of Biology.....	2,100.00
Melanchton F. Libby, Ph. D., Professor of Philosophy..	2,000.00
John B. Phillips, Ph. D., Professor of Economics and Sociology	2,000.00
John B. Ekeley, Ph. D., Professor of Chemistry.....	2,100.00
Russell D. George, M. A., Professor of Geology.....	2,000.00
Sanford Bell, M. A., Professor of Education.....	2,200.00
Joseph H. Bair, Ph. D., Professor of Psychology.....	1,900.00
Geo. C. Taylor, Ph. D., Professor of English.....	1,600.00

Theodore D. A. Cockerell, Professor of Systematic Zoology	200.00
Milo G. Derham, Ph. D., Assistant Professor of Latin..	1,200.00
Saul Epstein, Ph. D., Assistant Professor of Mathematics (see Engineering)	
James F. Willard, Ph. D., Assistant Professor of History	1,400.00
Martha G. McCaulley, M. A., Dean of Women.....	1,000.00
Fordyce P. Cleaves, M. A., Instructor in Oratory.....	550.00
George M. Chadwick, Instructor in Music.....	1,200.00
Gideon S. Dodds, M. A., Instructor in Biology.....	800.00
Clarence I. Lewis, B. A., Instructor in English.....	800.00
Margaret M. Helps, B. A., Assistant in German.....	200.00
Bertha E. Shryock, Assistant in German.....	200.00
Ruby L. Carstens, M. A., Assistant in Mathematics....	200.00
Helen J. Aldrich, M. A., Assistant in Romance Languages	400.00
William R. Brackett, B. A., Assistant in Physics.....	300.00
Frank A. Giacomini, B. A., Assistant in Physics.....	200.00
Harry E. Sovereign, Assistant in Physics.....	200.00
Arthur S. Chenoweth, B. A., Assistant in Greek.....	200.00
Harvey Markman, Assistant in Biology.....	170.00
Ray H. Fisher, B. S., Assistant in Chemistry.....	200.00
Johnson E. Naugle, Assistant in Chemistry.....	200.00
Harry Curtis, Stock Room Assistant.....	198.00
Ralph D. Crawford, B. A., Assistant in Geology.....	600.00
Charles B. Dyke, A. M., Assistant in Education.....	450.00
Gertrude Nafe, Assistant in English.....	100.00
Phoebe Waxham, B. A., Assistant in English.....	100.00
James E. Tuthill, A. M., Assistant in History and Economics	600.00
Ada Haldeman, Dean's Secretary.....	180.00
"Attendance" Secretary	125.00
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\$43,773.00	

Summer School.

Eighteen instructors\$ 2,255.00

College of Engineering.

Milo S. Ketchum, C. E., Dean; Professor of Civil Engineering\$ 2,100.00

Herbert S. Evans, E. E., Professor of Electrical Engineering	1,800.00
John A. Hunter, M. E., Professor of Mechanical Engineering	1,600.00
Saul Epstein, Ph. D., Assistant Professor of Engineering Mathematics	800.00
Howard C. Ford, M. S., Instructor in Civil Engineering.	800.00
David R. Jenkins, B. S. (E. E.), Instructor in Electrical Engineering	800.00
Jacob H. Wallace, B. S. (M. E.), Instructor in Engineering Drawing	800.00
George R. Moore, Superintendent of Shops.....	900.00
Harry M. Kingwill, Assistant in Civil Engineering.....	200.00
Howard E. Phelps, Assistant in Civil Engineering.....	200.00
Joseph H. Jacobucci, Assistant in Mechanical Engineering	100.00
Frederick W. Doolittle, B. A., Assistant in Mathematics	200.00
Walter W. Lewis, Assistant in Mathematics.....	200.00
Harry Tinker, Blacksmith	360.00
David M. Dodds, Assistant in Engineering Drawing....	100.00
Benjamin F. Pfalzgraf, Dean's Secretary.....	200.00
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\$11,160.00	

School of Medicine.

Luman M. Giffin, M. D., Dean; Professor of the Principles of Surgery and Clinical Surgery.....	\$ 250.00
John Chase, B. A., M. D., Professor of Ophthalmology and Otology	280.00
Thomas E. Taylor, B. A., M. D., Professor of Obstetrics.	310.00
William B. Craig, M. D., Professor of the Principles of Surgery and Pelvo-Abdominal Surgery.....	
E. Barber Queal, M. D., Professor of Physiology.....	250.00
George H. Cattermole, M. D., Professor of Diseases of Children and Clinical Medicine.....	100.00
Frank E. Waxham, M. D., Professor of Medicine, Clinical Medicine, Laryngology and Rhinology.....	320.00
Francis Ramaley, Ph. D., Professor of Histology and Embryology (salary noted elsewhere).	
Charles Fisher Andrew, M. D., Professor of Materia Medica and Therapeutics.....	100.00

Charles S. Elder, M. D., Professor of Gynecology and Abdominal Surgery	300.00
Newton Wiest, M. D., Professor of Diseases of the Skin	330.00
John B. Ekeley, Ph. D., Professor of Chemistry (salary noted elsewhere).	
Arthur McGugan, B. Sc., M. D., Professor of Psychiatry and Nervous Diseases.....	300.00
James R. Arneill, A. B., M. D., Professor of Medicine and Clinical Medicine	1,000.00
Dessie B. Robertson, DD. Sc., M. D., Professor of Bacteriology	500.00
Martin E. Miles, M. D., Secretary; Professor of Anatomy and Lecturer on Neurology.....	1,600.00
Richard W. Corwin, M. D., LL. D., Professor of Surgery	45.00
Charles B. Lyman, M. D., Professor of Surgery.....	340.00
John M. Foster, M. D., Professor of Otology.....	140.00
Oscar P. Johnstone, M. S., M. D., Professor of Pathology	1,600.00
Edward Jackson, A. M., M. D., Professor of Ophthalmology	150.00
Carroll E. Edson, M. A., M. D., Professor of Medicine..	300.00
William P. Harlow, M. D., Professor of Physical and Laboratory Diagnosis	50.00
Arthur L. Kennedy, M. D., Assistant Professor of Clinical Medicine and Therapeutics.....	270.00
Oscar M. Gilbert, M. D., Assistant Professor of Medicine	75.00
Walter W. Reed, M. D., Assistant in Obstetrics.....	75.00
Willard J. White, M. A., M. D., Lecturer on Hygiene and Medical Jurisprudence.....	50.00
Jacob Campbell, M. D., Lecturer on Minor Surgery and Bandaging	100.00
Joseph H. Bair, Ph. D., Lecturer on Psychology (salary noted elsewhere).	
Edward B. Trovillion, M. D., Instructor in Anatomy....	150.00
John A. Russell, M. D., Instructor in Minor Surgery and Bandaging	25.00
William A. Jolley, M. D., Instructor in Pharmacognosy.	50.00
Walter G. A. Schulte, B. A., Assistant in Chemistry....	200.00
T. Carroll Davis, B. E., P. D., Assistant in Anatomy....	50.00
Paul A. Osborne, Assistant in Pathology.....	50.00

University Hospital.

Ruth Stevens, Matron.....	780.00
Eleven Nurses	1,056.00
Hospital employes, as cook, laundress, porter.....	1,380.00
	<hr/>
	\$12,576.00

School of Law.

Appropriation for traveling expenses of professors and lecturers whose salaries are not indicated.....	\$ 350.00
John Campbell, M. A., LL. B., Dean; Professor of Law of Private and Municipal Corporations.	
Moses Hallett, LL. D., Dean and Professor of American Constitutional Law, <i>Emeritus</i> .	
John D. Fleming, B. A., LL. B., Secretary; Professor of Law and Judge of the Practice Court.....	2,500.00
Albert A. Reed, LL. B., Professor of Law.....	1,200.00
William H. Bryant, B. S., LL. B., Professor of Law.	
Robert Given, B. A., Professor of Law.	
Edwin Van Cise, Professor of Law.	
William H. Pease, B. A., LL. B., Professor of Law.....	1,700.00
James F. Willard, Ph. D., Assistant Professor of American and English Constitutional and Political History (salary noted elsewhere).	
....., Instructor in Law and Judge of Moot and Practice Court.....	300.00
James E. Tuthill, A. M., Assistant in History (salary noted elsewhere).	
Hugh Butler, Lecturer on Common Law Pleading.	
Luther M. Goddard, LL. B., Lecturer on Law of Patents, Copyrights and Trademarks.	
Robert S. Morrison, Lecturer on Law of Mines and Mining.	
Charles S. Thomas, LL. B., Lecturer on Law of Evidence.	
Henry T. Rogers, M. A., Lecturer on Law of Corporations.	
Lucius M. Cuthbert, M. A., LL. B., Lecturer on Roman Law.	
John A. Riner, LL. B., Lecturer on International Law.	
Platt Rogers, LL. B., Lecturer on Law of Irrigation.	

Thomas H. Hardcastle, B. A., LL. B., Lecturer on Equity Pleading and Practice.

Ralph Talbot, B. A., Lecturer on Criminal Law and Procedure.

Charles D. Hayt, Lecturer on Law of Taxation.

Caesar A. Roberts, M. A., Lecturer on Colorado Civil Code.

Arthur McGugan, B. Sc., M. D., Lecturer on Mental Alienation.

Willard J. White, M. A., M. D., Lecturer on Medical Jurisprudence.

Ernest L. Williams, LL. B., Lecturer on Conveyancing and Appellate Procedure.

Fred G. Folsom, B. A., LL. B., Lecturer on Bailments and Carriers.

Wilson L. Turman, B. A., LL. B., Lecturer on Suretyship and Guaranty.

James W. McCreery, Lecturer on Law of Irrigation and Water Rights.

Hugh P. Remington, B. A., Librarian.....	150.00
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Nathaniel Farnworth, Assistant Librarian.....	40.00
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Benjamin F. Pfalzgraf, Stenographer.....	40.00
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\$ 6,280.00

Library and Physical Training.

Alfred E. Whitaker, M. A., Librarian.....	\$ 1,600.00
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Walter L. Barnes, Ph. B., Assistant Librarian.....	600.00
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Granville B. Warner, Assistant in Library.....	300.00
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James F. Broome, Assistant in Library.....	150.00
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Summer Assistant in Library.....	90.00
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Frank R. Castleman, B. S., Director of Physical Training and Athletics.....	1,500.00
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Lucas K. Harper, Assistant in Gymnasium.....	120.00
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_____, Assistant in Gymnasium....	100.00
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\$ 4,460.00

Preparatory School.

(One-third paid by University.)

Henry White Callahan, Ph. D., Headmaster, Instructor in History and Latin.....	\$ 833.33
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James F. Denison, A. B., First Assistant and Instructor in Mathematics and English.....	400.00
Albert O. Cooperrider, B. A., Instructor in Mathematics and Civics	300.00
Warren F. Bleecker, B. S., Instructor in Physics and Chemistry	333.33
Bert F. Westmore, M. A., Instructor in English.....	266.66
Theodore D. A. Cockerell, Lecturer on Biology.....	100.00
Matilda Krebs, M. A., Instructor in English.....	300.00
Anna M. Grant, B. A., Instructor in Latin and Greek...	266.66
Carrie E. Orton, M. A., Instructor in Latin and English.	266.66
Maud Elden, M. A., Instructor in Mathematics and His- tory	266.66
Wilmatte P. Cockerell, B. A., Instructor in Biology....	333.33
Hilda C. Kallgren, B. A., Instructor in German, Latin and Greek	266.66
Ruth Dalziel, Instructor in Drawing.....	266.66
Margaret H. Hellems, B. A., Instructor in Greek and Latin	266.66
Laeta Elden, B. A., Instructor in History and English..	233.33
Clifford S. Dunham, M. Di., Instructor in Music.....	120.00
B. Ines Stearns, Instructor in Physical Culture.....	66.66
Mary G. Wilson, Secretary.....	75.00
R. T. Marshall, Janitor.....	270.00

\$ 5,231.60

Other Employees.

Joseph Klemme, Steward.....	\$ 600.00
William W. Parce, Landscape Gardener.....	200.00
Philip Varian, Adviser on Plan of Grounds.....	100.00
John Gumeson, Carpenter.....	900.00
Dan E. Hayward, Employe on Grounds.....	600.00
Night Watchman	600.00
Other employees for regular work on grounds.....	1,480.00
Charles E. Cummings, Engineer.....	900.00
Leon J. Webber, Fireman.....	600.00
William Owens, Fireman.....	450.00
William Q. Cornell, Janitor Main Building.....	480.00
Thirteen Student Janitors.....	1,390.50

\$ 8,300.50

Summary.

Administration	\$ 7,770.00
College of Liberal Arts.....	43,773.00
Summer School	2,255.00
College of Engineering.....	11,160.00
School of Medicine.....	12,576.00
School of Law.....	6,280.00
Library and Physical Training.....	4,460.00
Preparatory School	5,231.60
Other Employees	8,300.50
	<hr/>
	\$101,806.10

SECRETARY'S FEE REPORT.

From October 1, 1904, to October 1, 1906.

Receipts.

Cash on hand, last report.....	\$ 128.09
Notes on hand, last report.....	131.25
Cash in hands H. S. Visitor.....	100.00
Tuitions and fees from College of Liberal Arts and College of Engineering.....	15,824.00
Tuitions and fees from Law School.....	4,988.00
Tuitions and fees from Medical School.....	6,133.65
Hospital receipts	14,056.54
Chemistry fees	2,636.03
Room rent	1,875.50
Deposits	937.25
Summer School	2,567.00
Miscellaneous	3,107.62
	<hr/>
	\$52,484.93

Deposits with Treasurer, Etc.

Deposited with William H. Allison, Treasurer.....	\$52,103.16
Cash on hand (H. S. Visitor).....	100.00
Notes on hand for tuition.....	201.25
Cash on hand.....	80.52
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	\$52,484.93

Respectfully submitted,

EDWIN J. INGRAM,
Secretary Board of Regents.

REPORT ON PERMANENT FUND.

Board of Regents, State University, Boulder, Colorado:

GENTLEMEN—In compliance with your request of September 21, we herewith send statement of the University Permanent Fund, October 1, 1906:

University Permanent Fund.....	\$48,269.15
Invested	47,489.79
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Available (cash)	\$ 779.36
Unavailable warrants, years 1889 and 1894.....	\$27,763.87
Available warrants, years 1905 and 1906.....	19,725.92
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	\$47,489.79
Total available fund.....	\$20,505.28
Total unavailable fund.....	27,763.87
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Total	\$48,269.15

Very truly yours,

JOHN A. HOLMBERG,
State Treasurer.

REPORT ON UNIVERSITY LANDS.*

Report on University lands by Mark G. Woodruff, Register
State Board of Land Commissioners, October 1, 1906:

Location.	Acreage Owned by State.	Acreage Leased.	Annual Income.
Conejos County	80	80	\$ 10.00
Jefferson County	6,840	920	61.60
Logan County	3,473.35	2,532.01	509.20
Washington County	1,440	240	34.00
<hr/>		<hr/>	
Total	11,833.35	3,772.01	\$614.80

*Note—Certain of these University lands are now included in government reserves, and the Regents are endeavoring to secure an exchange for other lands.

REPORT OF STATE AUDITOR.

University Tax Fund.

By Balance, October 1, 1904.....	\$ 1,437.90	
By Receipts from levy.....		273,795.77
To amount paid University Treasurer....	\$269,367.86	
To refund amount overpaid by Teller Co.	2.09	
To Balance, September 30, 1906.....	*5,863.72	
	<hr/>	<hr/>
	\$275,233.67	\$275,233.67

University Income Fund.

By Balance October 1, 1904.....	\$ 893.51	
By Receipts		2,624.19
To amount paid University Treasurer....	\$ 3,144.10	
To Balance, September 30, 1906.....	*373.60	
	<hr/>	<hr/>
	\$ 3,517.70	\$ 3,517.70

WARREN S. DANIELS,

Deputy Auditor of State.

*The University Treasurer credits \$5,853.72 of the Tax Fund on September 29 which was not charged by the Auditor until after October 1; and \$373.60 on same date which was not charged by the Auditor until after October 1.

Credited by Treasurer on Tax Fund.....	\$269,367.86	
	5,853.72	
	<hr/>	<hr/>
	\$275,221.58	
Credited by Treasurer on Income Fund.....	\$ 3,144.10	
	373.60	
	<hr/>	<hr/>
	\$ 3,517.70	

Compare Treasurer's Report.

TREASURER'S REPORT.

From October 1, 1904, to October 1, 1906.

Receipts.

Cash on hand October 1, 1904.....	\$ 11,427.37
State Treasurer, General Fund.....	275,221.58
State Treasurer, Land Income.....	3,517.70
Receipts from Secretary Board of Regents.....	52,103.16

Advanced (part of loan of \$69,819.30 of previous period brought forward),		
First National Bank.....	\$30,003.67	
National State Bank.....	21,895.88	
Boulder National Bank.....	10,374.85	*62,274.40
Due from E. J. Temple.....		200.00
		<hr/>
		\$404,744.21

Disbursements.

Warrants paid from October 1, 1904, to October 1, 1906.	\$320,803.62	
Interest warrants of previous period paid, representing difference between debt at date of last report and debt October 1, 1906	\$ 7,544.90	
Interest warrants of previous period not paid, stamped for interest October 1, 1906	62,274.40	69,819.30
Cash on hand, General Account.....	\$ 8,236.99	
Special Account	5,000.00	
Women's Fund Special.....	25.00	
Men's Fund Special.....	25.00	
Engineering Dept. Special..	50.00	
Philo Sherman Bennett Fund	400.00	
Balance Guggenheim Fund..	184.30	*13,921.29
	<hr/>	
Cash in hands E. J. Temple, former Secretary Board of Regents		200.00
		<hr/>
		\$404,744.21

WILLIAM H. ALLISON,
Treasurer.

*\$45,000 and interest still due the University from the Surplus Fund of the State.

SECRETARY'S REPORT.

From October 1, 1904, to October 1, 1906.

Warrants issued in payment of expenses of the several departments of the University, during the biennial period, October 1, 1904, to October 1, 1906:

General Administration—Regents' service and mileage, President's and Secretary's salary, salaries of Registrar and his assistants, and all expenses of Registrar's office	\$ 22,181.67
College of Liberal Arts—Instruction and expense.....	84,046.03
School of Applied Science—Instruction and expense..	16,794.96
Summer School—Instruction	4,109.40
School of Medicine—Instruction, apparatus, supplies, hospital, and other expenses (largely reimbursed by medical tuitions and hospital receipts).....	34,264.52
School of Law—Instruction, library, and other expenses (partly reimbursed by tuitions).....	11,985.58
Preparatory School—Instruction, and other expenses.	11,718.29
Library and Physical Training—Service, books, periodicals, binding and supplies; salaries for Physical Training, apparatus and expense.....	14,491.72
Biology—Books, apparatus, supplies.....	2,715.13
Chemistry—Books, apparatus, supplies.....	3,398.48
Economics—Books, supplies	237.37
Education—Books, supplies	57.55
English—Books, apparatus, supplies.....	255.40
Geology—Books, apparatus, supplies.....	4,396.70
German—Books	189.13
Graphics—Books, apparatus, supplies.....	144.67
Greek—Books, apparatus, supplies.....	237.64
History—Books, apparatus, supplies.....	544.66
Latin—Books, supplies	227.04
Literature—Books, apparatus, supplies.....	909.46
Mathematics—Books, apparatus, supplies.....	670.45
Museum—Books, apparatus, supplies.....	1,045.41
Music—Books, apparatus, supplies.....	319.50
Philosophy—Books, supplies	318.91
Psychology—Books, apparatus, supplies.....	266.30
Physics—Books, apparatus, supplies.....	1,549.89
Romance Languages—Books	195.60

Civil Engineering—Books, apparatus, supplies.....	1,149.15
Electrical Engineering—Books, apparatus, supplies...	2,142.12
Mechanical Engineering—Books, apparatus, supplies..	2,495.07
Buildings and Grounds—Salaries (janitors, heating and lighting service and care of grounds), repairs, light, fuel, insurance, horses, water rent, unclass- ified	34,427.89
Buildings and Grounds—New buildings, improvements on buildings, and improvements on grounds.....	27,614.04
Furniture and supplies.....	8,070.69
Printing	8,682.43
Stationery and postage.....	3,046.49
High School Inspection, lectures by faculty mem- bers, etc.	2,529.12
Advertising	1,052.90
Refund of fees and tuitions.....	1,858.40
General Unclassified Account (interest, \$8,108.59; un- classified, \$5,921.80)	14,030.39
Total	\$324,370.15

Warrants issued not paid by October 1, 1906.....\$	5,487.65
Warrants issued not paid by October 1, 1904.....	1,921.12

\$ 3,566.53

Warrants issued from October 1, 1904, to October 1, 1906	\$324,370.15
Warrants outstanding	3,566.53

Total Warrants paid by Treasurer.....\$320,803.62

Respectfully submitted,

EDWIN J. INGRAM,

Secretary.

LIBRARIAN'S REPORT.

To the President and Board of Regents, University of Colorado:

GENTLEMEN—I have the honor to present herewith my report on the Library, covering the period from October 1, 1904, to October 1, 1906:

Additions.

The total number of volumes accessioned and placed in the library during the two years is 6,867, derived from various sources, as follows:

Gifts (public documents).....	1,021
Gifts (miscellaneous)	1,784
<hr/>	
Total gifts accessioned.....	2,805
By binding	899
Purchased	3,163
<hr/>	
Total accessions	6,867

Donations.

Gifts have been received, entered and acknowledged as follows:

Books	2,561
Miscellaneous—College catalogues, pamphlets, etc.....	3,439
Maps, charts, etc.....	111
<hr/>	
Total	6,111
Note—Donations are shown in detail on pages 36, 37.	

Binding.

Periodicals (completed volumes).....	1,066
New books (issued in paper).....	991
Newspapers	29
Rebound	155
<hr/>	
Total	2,241

Summary.

Number of volumes reported October 1, 1904.....	31,815
Additions—	
By gift	2,805
By binding	899
By purchase	3,163
<hr/>	
Total additions	6,867
<hr/>	
Total	38,682

Deductions—

Cancelled (lost and worn out).....	144	
Less (found and returned).....	17	127

Total number of volumes in library, October 1, 1906.....38,555

Respectfully yours,

ALFRED E. WHITAKER,

Librarian.

INVENTORY OF UNIVERSITY PROPERTY.

The following estimates, taken from inventories recently made, are presented as fair approximations:

Grounds.*

Campus, sixty acres (estimated present value unimproved)	\$100,000.00
Improvements, as fences, grading, roads, walks, pipes, drains, trees, lake, bridges, athletic field.....	30,000.00

Buildings.

\$130,000.00

(Approximate cost of each.)

Main Building	\$ 37,300.00
University Cottage	6,800.00
Medical Building	9,500.00
Cottage No. 1.....	8,500.00
Cottage No. 2.....	3,800.00
Anatomy Building	2,700.00
Woodbury Hall	24,800.00
Hale Science Building.....	48,700.00
Engineering Building	47,400.00
Observatory	300.00
Ice House	300.00
Stable and Shed.....	1,300.00
Chemistry Building	41,000.00
Gymnasium Building	6,000.00
Hospital, furnished	15,000.00
Library Building (not including extension of heating pipes in ground)	75,500.00

\$328,900.00

*About 12,000 acres of lands not estimated.

Implements, Furniture, Heating and Lighting.

Team, implements, tools, carpenter's supplies (value).\$	4,450.00
Room furniture, as chairs, settees, desks, tables, movable cases, pictures, office furniture, dormitory and dining hall equipment, shades, janitor's supplies, gymnasium apparatus (value).....	28,621.00
Heating Plant (boilers, heating pipes in ground, fan house, heating apparatus and supplies); Lighting Plant (poles, wires, apparatus and supplies).....	15,204.00
	<hr/>
	\$ 48,275.00

Library.

Library (value)	\$ 60,000.00
-----------------------	--------------

Apparatus, Etc.

Biology	\$ 2,590.00
Chemistry	4,841.00
Civil Engineering	5,571.00
Comparative and English Literature.....	736.00
Economics and Sociology.....	50.00
Education	157.00
Electrical Engineering	7,976.00
Geology	6,695.00
German	20.00
Graphics	614.00
Greek	331.00
Hospital	1,013.00
Latin	20.00
Law	455.00
Mathematics	804.00
Mechanical Engineering	8,979.00
Medicine	2,866.00
Music	268.00
Physics	7,260.00
Psychology	1,103.00
	<hr/>
	\$ 52,349.00

Collections.

Art	\$ 1,899.00
Biological	2,580.00
Geological and Mineralogical.....	3,495.00
	<hr/>
	\$ 7,974.00

Summary.

Grounds	\$130,000.00
Buildings	328,900.00
Implements, Furniture, Heating and Lighting.....	48,275.00
Library	60,000.00
Apparatus, etc.	52,349.00
Collections	7,974.00
	<hr/>
	\$627,498.00

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6-08

THE LIBRARY
OF THE
UNIVERSITY OF ILLINOIS

BIENNIAL REPORT
OF THE
REGENTS
OF THE
UNIVERSITY OF COLORADO



1906-1908.

Sixteenth Biennial Report
OF THE
REGENTS
OF THE
UNIVERSITY OF COLORADO



BOULDER, COLORADO

October 1, 1908

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UNIVERSITY OF COLORADO.

SIXTEENTH BIENNIAL REPORT OF THE REGENTS, 1906-1908.

To the State Superintendent of Public Instruction, and the Seventeenth General Assembly:

The Sixteenth Biennial Report from October 1, 1906 to October 1, 1908, is herewith presented by the Regents.

INTRODUCTORY STATEMENT.

Perhaps the leading feature of this Report, apart from the customary record of events and financial statements, is the emphasis given the activities that are beyond the usual duties of undergraduate instruction. What the Graduate School is doing and aims at, the research work of various departments and its practical value to the State, and the need of further developing these interests, the books and articles written by members of the Faculty during the past two years are worthy of special attention. Next in importance is the establishment of the College of Education, a full account of which is found in its proper place. Emphasis is given to the reorganization of the General Faculty, for greater efficiency, the proposed revision of the College curriculum, increased facilities in the School of Medicine, etc., as tabulated below. The growth, new buildings, and needs appear as matters of course.

Reference is here made to the pages of the Report where some of the more important points are presented:

The development of the Graduate School, pp. 8-11.

Research in the College of Liberal Arts, pp. 14-17.

Research in the College of Engineering, pp. 33-40.

U. S. Timber Testing Station, p. 35.

Research in the School of Medicine, p. 44.

Florissant discoveries, p. 17.

- Archæological expedition, p. 17.
- State Geologist, pp. 16, 54.
- Publications in the Graduate School, pp. 6-8.
- Publications in the College of Liberal Arts, pp. 17-22.
- Publications in the College of Engineering, pp. 31-32.
- The College of Education, p. 24.
- Reorganization of the General Faculty with Council, Senate, and separate faculties, p. 47.
- Group system in the College of Liberal Arts, p. 12.
- Plans for more individual care of students, p. 48.
- Required physical training, p. 49.
- Debating and inter-collegiate debates, p. 48.
- Engineering graduates in teaching, p. 32.
- Increased facilities in the School of Medicine, pp. 41-44.
- Increased attendance in the Law School, p. 45.
- Growth of the University (about 30 per cent. increase in attendance in two years), p. 5.
- Gifts, p. 55.
- Needs, pp. 52-54.

COLLEGES AND SCHOOLS OF THE UNIVERSITY.

The Colleges and Schools of the UNIVERSITY OF COLORADO are the following:

- I. COLLEGE OF LIBERAL ARTS.
Courses leading to the degree B. A.
- II. COLLEGE OF COMMERCE.
Course leading to the degree B. A. and special certificate.
- III. COLLEGE OF EDUCATION.
Course leading to the degree B. A. and special certificate.
- IV. GRADUATE SCHOOL.
Leading to the degrees M. A. and Ph. D.; also M. S., C. E., E. E., M. E.
- V. COLLEGE OF ENGINEERING.
Civil Engineering, leading to the degree B. S. (C. E.).
Electrical Engineering, leading to the degree B. S. (E. E.).

Mechanical Engineering, leading to the degree B. S.
(M. E.).

Chemical Engineering, leading to the degree B. S.
(Ch. E.).

VI. SCHOOL OF MEDICINE.

Leading to the degree M. D.

VII. SCHOOL OF LAW.

Leading to the degree LL. B.

VIII. SUMMER SCHOOL.

ATTENDANCE.*

Years.	Univ. Students.	Summer School Students.
1891-2	66	..
1905-6	743	79
1906-7	840	98
1907-8	961	126
1908-9	1,025 (estimated)	129

*The attendance at the Preparatory School in 1891-2 was 103, in 1906-7 was 527. In September 1907 the Preparatory School, as a department of the University, was discontinued.

DEGREES CONFERRED.*

In 1907 and 1908 degrees were conferred as follows:

	1907	1908
College of Liberal Arts.....	53	77
Graduate School.....	9	14
College of Engineering	19	27
School of Medicine	12	11
School of Law	16	16
Honorary .....	..	1
	<hr/> 109	<hr/> 146

*The Preparatory School graduated 35 in June, 1907.

GRADUATES.*

The register of the graduates now shows the following figures:

College of Liberal Arts.....	558
Graduate School	105
College of Engineering	137
School of Medicine	173
School of Law	172
Honorary Degrees	18
	<hr/>
	1,163

*Graduates of the Preparatory School, from the beginning until the School was discontinued, September 1907, and not included in the above summary, 587.

GRADUATE SCHOOL.

Higher degrees have been conferred upon 23 candidates in the past two years.

In the year 1907 the degree Master of Arts was conferred upon:

Name.	Subject of Thesis.
Clara Louise Alden,	"Physical Tests and Measurements of Children in the Boulder Public Schools."
Cora Bennett,	"The Relation of Insects to Plants."
Florence Wilder Coates,	"The Characters of Molière."
Ralph Dixon Crawford,	"Areal and Petrographical Geology of the Sugar Loaf District."
Leslie Ninde Cullom,	"The Dramatic Art of Ford, an Analysis and Appreciation of 'The Broken Heart.'"
Cora Curtis Long,	"The Women of Ibsen's Dramas."
Ethel Phoebe Waxham,	"The Dramatic Theory and Practice of Maurice Maeterlinck."

In 1908 the degree Master of Arts was conferred upon:
 Emily Zene Craig, "The Natural Drama."

Gertrude FitzRandolph Currens,	"The Dramatization of the Novel."
Jesse Wilson Currens,	"The American Drama."
John August Dopp,	"Influence of Repetition in Memory."
Durward Leslie Eaton,	"The Complex Roots of Algebraic Equations."
Frank Anthony Giacomini,	"On the Energy Generated in Lead or Zinc by Bombardment with Kathode Rays."
James Percy Grant,	"Japanese Education Before Meiji."
Roy Stuart McIntosh,	"Irrigation in Colorado and Its Influences on the Social and Industrial Development of the State."
Johnson Edward Naugle,	"On the Action of Some Aromatic Aldehydes upon Ortho-phenylenediamine."
Sarah De Maupassant Plaisance,	"Les trois Unites chez Racine."
Lauran F. Smith,	"The Land Policy of Colorado."
Margaret Love Wheeler,	"The Satirical Element in the English Morality Plays."
Simon Horace Williams,	"The Scope and Value of Manual Training" (with original problems).

In 1907 the degree Civil Engineer was conferred upon:
Howard Carlton Ford, "A Course in Railway Engineering."

In 1907 the degree Electrical Engineer was conferred upon:
David Rhys Jenkins, "Electric Lighting."

In 1908 the degree Mechanical Engineer was conferred upon:
Harvey Ellison Murdock, "Investigation of the Effect of Repetition of Stress on Steel."

In 1908 the honorary degree of Doctor of Divinity was conferred upon:
Harry Noble Wilson.

The Graduate School is the training place for special investigation in science, in philosophy, in literature, in history, in sociology. The scholarship of the University is judged by the quality of work done in preparing students for higher degrees. It is a matter of importance to every citizen of Colorado that this work be of a high standard of excellence, and that ample means be provided. The time has come when the Legislature should look into the needs of the Graduate School and provide for its support.

Some needs are obvious by a glance at the work of the departments, as may be shown by these two examples: (1) In the department of Economics ten graduate students have asked for work in four divisions as follows: one graduate from the University of Chicago, in an elementary class of undergraduates, two hours a week; a graduate in a more advanced class of undergraduates, three hours a week; four graduates in a class of undergraduates, two hours a week; seven graduates in a class primarily for graduates, meeting in seminar once a week. This last is a remarkable class, containing five men and two women; three of them are graduates of Eastern institutions, three are candidates for the degree Ph. D., studying in the Graduate School under Dr. Phillips in 1906-7, under Professor Bailey in 1907-8, and now under Professor King. This is a class which any university might be proud of. They are ready to do original work. They are taking all the department offers; and the department is offering all it can. One meeting a week for graduates is insufficient. This group has been attracted partly by the excellent work of the department and partly by the subject. If satisfactory graduate work is to be conducted in this field, a department of sociology should be established to cooperate. (2) In another department the applications for graduate instruction by students now in attendance are in six classes: a graduate of a Massachusetts college, five hours in a limited class of advanced undergraduates; a graduate in another class of upper classmen conducted by the professor, three hours; an instructor in the University in a reading course, with written specifications for each day and with conferences, five hours; another instructor in the University in a reading course under supervision with conferences, three hours; a student who was in the Graduate School last year, reading courses with conferences, three hours; six graduate students in a class primarily for graduates with five ad-

vanced undergraduates, daily exercise with the professor, five hours. Four of this last class were in the Graduate School last year; two have the Master's degree from this University; and three are reading for the degree Ph. D. The graduate work asked for by these six classes thus early in the semester amounts to 102 hours of credit for the year, besides the supervision of six theses. If such additional demands come to a professor already loaded with the usual amount of undergraduate classes and faculty responsibilities, what is to be done?

The care of the State is asked not only in providing additional instruction and equipment in several departments but also in furnishing those advantages and inducements which will put the Graduate School of this University on some equality with other graduate schools. An up-to-date graduate school must have a body—it may be a small body—of first class students to set a standard of work. Our departments of biology, zoology, and geology are well coordinated for graduate work; they have one of the most attractive locations in the world, but it is hard to keep a good graduate student; such students are sooner or later called away by superior inducements, not of field or instruction, but of money or position. If fostering care is needed for departments where the pre-requisites are simple and easily met by the average graduate, how much more attention is needed to build up a nucleus in departments like physics, and classics. A graduate student should have twelve to fourteen years in mathematics for good preparation in physics; few get it. The graduate students in physics are usually men working for degrees in engineering; in these later years every physics student who has power is offered an Eastern scholarship or called to some commercial enterprise. In classics the work is coordinated even better than in natural science; there is no other work that can be so perfectly done at this University, and it can be done no better anywhere. But a preparation of ten or eleven years in Latin and Greek is expected for admission to graduate courses in classics; fewer and fewer have this preparation; the work is straightforward, masterly; only strong students seek it; and strong students are wanted elsewhere. The University cannot afford to neglect the means taken by other institutions to foster higher classes in physics, classics and other departments of difficult preparation, and strenuous labor.

The loss to the University in other departments is real though less conspicuous. More are attracted to subjects of easy admission; but here, too, the Graduate School loses students to Harvard, Yale, Columbia, Chicago and Pennsylvania; the best student works up a good thesis and wins at the older institutions a living of five hundred to eight hundred dollars a year. The continual cutting off at the top results in great loss of power and prestige. These students of ability are needed here; some can teach; all can help in original investigation. The good professor gives all that he has and is to his students; and the good student gives back in the drudgery and irksome labor that underlies all new achievement; many a professor's reputation is buttressed by the labors of those who have worked under him.

Two things this University should stand for: high scholarship and original research; and these require a reorganization and better equipment of the Graduate School.

The degree of Master was first conferred in 1885. In 1892-3, the University announced that candidates would be received for the degree Doctor of Philosophy; the degree was first granted in 1895. There has been a serious question about the advisability of granting this degree, so much so that two secretaries in charge of the School have declared against it. The time for hesitation is now past; the State should decide whether it wants a Graduate School or not. There are eleven candidates now asking for instruction towards the degree Doctor of Philosophy. In the next three years the University is likely to grant twice as many of these degrees as in its whole history. What candidates shall say of the instruction received will make a very serious contribution to the reputation of the University. Shall they say that they could get no work in classes, or only once a week? that they were in classes planned for freshmen and sophomores? that they worked alone with little supervision? that teaching was scarce and equipment poor? And will the faculty vote degrees to students with one-quarter of the standard work because some hard pressed department has been able to offer only twenty hours of graduate work in four years? The answer to such questions is not to be found in general legislation, but in liberal provision on the part of the State and in constant vigilance in the administration of the School.

The work for the Master's degree presents problems, too.

Shall credit from an inferior institution be accepted? No one person has the acumen, the patience, the time to detect and the influence to withstand the quibbles and subterfuges of the unfortunate clamorers for degrees. Every application for a programme of work and for a higher degree should be invalid without the approval of a committee of the strongest and most conservative members of the faculty who are constantly acquainted with all affairs of the Graduate School.

The last Biennial Report of the Regents contains a recommendation for the organization of the Graduate School with a Dean and Executive Committee, the committee to be appointed by the President in agreement with the Dean. The Dean and Committee should make a thorough study of graduate schools, revise schedules of students, admit to examination and recommend such legislation as shall maintain an honorable standard.

The work of the Graduate School is to be judged by the long list of graduate students who have been helped to greater influence though not taking a degree, by the eminent names among its alumni, and by the esteem of other institutions. The honorable record achieved is due to the earnestness and self sacrifice of individual professors. Through the years, scholarly men, usually overworked and often poorly paid, have devoted to graduate students their evenings, their Saturdays. No man has received extra pay for such work or release from other duties. Nor has money been spent upon the School by the State beyond buying blanks and books of record. The standing of the School is a monument to the love of learning of men, many of whom have passed away; and in the years to come other men of culture will not withhold their help from those who deserve it. But it is necessary to consider the great value of a graduate school, to note the vast sums spent by other institutions on graduate schools, and to plan for similar liberal scholarships, fellowships, and professorships at the University of Colorado.

COLLEGE OF LIBERAL ARTS.

Some years ago a definite danger was felt that the general growth of the University would be more or less at the expense of the College of Liberal Arts. This fear has fortunately proved groundless, and last year (1907-8) this department registered 532

students in a total of 961. The indications are that the present year will show as favorable a statement.

In the College of Liberal Arts, however, perhaps more truly than anywhere else, numbers are of little moment. The real essentials are wise and definite aims, real standards of achievement, and above all lofty ideals of teaching reflected in a proper spirit of learning. Along these lines the College may feel well qualified to report genuine progress. The preparation of the incoming students grows better each year, which permits of better work in the University. The staff on the whole is equipped with sound scholarship and animated by elevating ideals. There is a spirit of work and movement, manifested principally in the work of instruction, but also by research and publications. During the last two years the members of the Faculty have put forth a number of significant articles covering a range from palæontology to current literary studies, and indicating a laudable activity in most departments. With reference to the practical outworking of aims in College education, as manifested in the requirements for graduation, it should be noted that a committee is working on a "group" plan to replace the present elective system. During the next biennium the College will probably adopt some intelligent form of the "group" idea, which is already in operation in the College of Commerce and College of Education. The underlying thought is to have a curriculum which shall facilitate the training and disciplining of the student's mind in general, while giving him substantial knowledge and potential mastery of some field of a scholarship, thus fitting him for the service of mankind. The introduction of this "group" system will provide a helpful mechanism for the outworking of our educational ideals. But it would be barren without a competent teaching staff, and every effort must be made to keep the Faculty at the highest point of efficiency.

It is worthy of note that a class in Hebrew has been formed this year to meet a considerable demand. Debating has been organized with a special instructor in the subject and proper emphasis will now be given to this interest. Under a separate caption is a report on prize debates, etc.

Faculty.

The following promotions have been made in the last two years: George M. Chadwick, to be Professor of Music, September, 1907; James F. Willard, Ph. D., to be Professor of History, September, 1907; Ralph D. Crawford, M. A., to be Assistant Professor of Geology, September 1908; Miss Ruby L. Carstens, M. A., to be Instructor in Mathematics, September, 1908; Joseph L. Kingsbury, B. A., to be instructor in History, September, 1908; Miss Margaret S. Carhart, M. A., to be Instructor in English, September, 1908.

The following new appointments have been made: Vivian A. C. Henmon, Ph. D., to be Professor of Psychology and Education, January, 1907; Oliver C. Lester, Ph. D., to be Professor of Physics, September, 1907; Frank E. Thompson, B. A., to be Professor of Education, September, 1907; Clyde L. King, M. A., to be Acting Professor of Economics, September, 1908; Arthur L. Tatum, M. S., to be Instructor in Chemistry, September, 1907; Henry A. Hartman, Ph. D., to be Instructor in Education, September, 1907; Samuel C. Black, M. A., D. D., to be Instructor in Hebrew, September, 1908; Mary K. Murphy, B. A., to be Instructor in German, September, 1908; Whitford H. Shelton, Ph. B., to be Instructor in Romance Languages, September, 1908; Wilfred W. Robbins, B. A., to be Instructor in Biology, September, 1908; Harry A. Curtis, B. S. (Ch. E.), to be Instructor in Chemistry, September, 1908; Adolph G. Pierrot, Ph. B., to be Instructor in English, September, 1908; William R. Brackett, B. A., to be Instructor in Physics, September, 1908; Carl L. Rahn, Ph. B., to be Instructor in Education, September, 1908; Junius Henderson, B. A., to be Curator of Museum, September, 1907.

Professor John B. Phillips, Ph. D., was given leave of absence for one-half year to supply at the University of Michigan, January, 1908, and one year to study in Europe, September, 1908.

The following former members of the Faculty have severed their connection with the University: Professor William Duane, Ph. D., to enter the Curie Laboratory, September, 1907; Professor Sanford Bell, M. A., January, 1907; Professor Joseph H. Bair, Ph. D., January, 1907; Gideon S. Dodds, M. A., Instructor in Biology; Clarence I. Lewis, B. A., Instructor in English.

Mr. Herbert T. J. Coleman, A. B., was Acting Professor of

Education between the resignation of Professor Bell and the appointment of Professor Thompson. He accepted a position in the University of Toronto, 1907.

Research Work in the College of Liberal Arts.

It is clear that many departments of the College in addition to regular work should be able to do valuable service to the State in various special lines, if the necessary equipment and teaching force could be provided. Something in research leading more directly toward practical results is being done, but much more should be undertaken. In Colorado the mixed nature of the population, the diverse and multiform aspects of production and industrial activity, the persistent recurrence of the "capital and labor" problem, the significance of transportation, all suggest that the State University should be so equipped as to enable it to make investigations and render expert, disinterested service along given lines. Taxation should be studied scientifically, railroad traffic and development should be viewed as something more fundamental than a financial question, and railroad commissions could use an expert available for consultation. The University upon request ought to be able to assist the General Assembly with reports as to previous legislation in other states or countries in any connection. The Chair of History should be equipped to investigate local history. The science departments could with advantage reach out to various industrial and economic interests as well as engage in scientific research in this rich new field. Here follow some of the lines of research for which the State should provide as soon as possible:

Economics and Sociology.

Legislation.

Taxation.

Transportation.

Industrial Problems.

Sociological Problems.

History.

Local History. [Some work has been undertaken].

Psychology and Education.

Many Educational Problems. [Such as "History of Education in Colorado," "The Training and Certification of Teachers," "Practical Educational Ideals," "Educational Values," "Interrelations of Elementary, Secondary, and Higher Education," "The Technique and Economy of Training."]

Physics.

Theory of Electricity. [Already undertaken.]

Constitution of Matter. [Already undertaken.]

Problems of Radio-activity.

Air Currents. [Local.]

Temperatures above Mountains. [Local.]

Problems in Electricity and Magnetism, Thermodynamics, Mechanics.

[For research in most of these subjects more facilities are needed.]

Botany.

Sanitary Science and School Hygiene. [Some work now done; more laboratory and library equipment needed.]

Economic Botany. [Much is now offered; much more could be done; lectures by practical men could be offered.]

Forestry. [An additional professor and a greenhouse would be needed.]

Climatology. [In connection with the Weather Bureau; relation to life and industries.]

Museum Research. [Various problems in Geology, Palæontology, Botany, and Zoology; especially important in Colorado.]

Experimental Evolution. [Relation of altitude to the life and activities of plants and animals; problems of heredity and environment. A mountain laboratory would be needed.]

Zoology.

Zoology of Colorado.

Variation of Animals.

Geographical Distribution of Animals.

Entomology. [Scale insects; hymenoptera, diptera.]

Palæontology. [Fossil insects; fossil plants.]

[The above lines of research could be conducted now, with more financial support. The department of Zoology is continually

applied to by institutions and individuals to work up materials of certain groups which the professor has especially studied. In some cases (scale insects, etc.) this work has an important economic bearing. For want of time, and assistance in the more mechanical sides of the work, most of the requests have to be refused, although the proffered materials are often of great scientific interest, and a share of them would be given to the University. Although the results of much of the work would not be of especial interest to the people of Colorado, it must be remembered that it is customary for the higher institutions to work in their special lines for each other, and that we receive much help from universities and other institutions throughout the world, and should do our best to reciprocate. Heretofore Colorado has reaped continuous benefit from research work done elsewhere but has scarcely done her share of this class of work.]

Chemistry.

Methods of Mineral Analysis.

New Synthesis of Organic Compounds.

Preparation of New Organic Compounds.

New Methods of Electro-Chemical Analysis.

Analysis of Foods.

Physical, Chemical, and Electro-Chemical Problems.

Waters of Mineral Springs.

Industrial Chemistry. [Lectures by prominent technical men.]

[The Department of Chemistry is already doing much of the above work, is prepared to do most of it, but needs more money to carry on some of the lines of investigation.]

Geology.

Ceramics.

Cement. [Materials and geology of same; testing.]

Building Stones.

Quantitative Mineralogy, and Rock Analysis.

Petrography.

Palæontology.

Meteorology.

Work of State Geologist. [The Professor of Geology is now

State Geologist, but more money is needed for extension of the work.]

[To carry on all the above lines of research in Geology would require more equipment and more teachers.]

Archæology.

Last summer in connection with the American School of Archæology the University expended \$500 for a field expedition in Southern Colorado. Much valuable material was collected, but is now stored in boxes until room in a new building can be provided sometime in the future.

Publications.

The following table will indicate the publications of the Faculty of the College of Liberal Arts during the past two years: James H. Baker, M. A., L.L. D., President of the University:

"American Problems" (Essays and Addresses). Longmans, Green & Co., New York, N. Y., 1907.

Ruby L. Carstens, M. A., Instructor in Mathematics:

"A Definition of Quaternions by Independent Postulates." University of Colorado Studies, Vol. III., No. 4.

George M. Chadwick, Professor of Music:

"Tendencies in Modern Musical Composition." University of Colorado Studies, Vol. III., No. 4.

"The Relation of the Composer to Musical Form." University of Colorado Studies, Vol. V., No. 1.

T. D. A. Cockerell, Professor of Systematic Zoology:

Professor Cockerell has published about 150 papers and notes during the past two years. Many of these relate to the fossils discovered at Florissant, Colorado, by the University expedition. These fossils include many unique and hitherto undescribed forms, and throw much light on the history of Colorado during Tertiary times. Among the principal articles are:

"The Bees of Florissant, Colorado." Bull. Amer. Mus. Nat. Hist.

"The Bees of New Mexico." Trans. Amer. Entomological Society.

"The Coleoptera of New Mexico" (with H. C. Fall). Trans. Amer. Entomological Society.

"A Scientific Comedy of Errors" (with F. B. R. Hellems). Popular Science Monthly.

"Some Old World Types of Insects in the Miocene of Colorado." Science, Oct. 4, 1906.

"Fossil Insects from Florissant, Colorado." Bull. Amer. Mus. Nat. Hist.

"The Fossil Flora of Florissant, Colorado." Bull. Amer. Mus. Nat. Hist.

"Biology and Human Progress." Atlantic Monthly.

"Description of Tertiary Plants." Amer. Jour. of Science.

"Florissant: a Miocene Pompeii." Popular Science Monthly.

Other articles have appeared in the following journals: Psyche, Entomological News, Nature, Nautilus, The Dial, University of Colorado Studies, Muhlenbergia, Torreya Botanical Gazette, Annals and Magazines of Natural History, American Naturalist, etc.

342 new species (the majority insects, but including many plants, mostly fossil, some mollusca, etc.) have been described. Gideon S. Dodds, M. A., Instructor in Biology:

"On the Brain of One of the Salamanders (*Plethodon glutinosus*)." University of Colorado Studies, Vol. IV., No. 2.

"A list of the Entomostraca of Colorado." University of Colorado Studies, Vol. V., No. 4.

John B. Ekeley, Ph. D., Professor of Chemistry:

"Ueber ein zweites Dihydrochinoxalin." Berichte der Deutschen Chemischen Gesellschaft.

"A New and Short Method for the Determination of Tungsten in Tungsten Ores." Western Chemist and Metallurgist.

"The Valuation of Commercial Potassium Chlorate." Western Chemist and Metallurgist.

Saul Epstein, Ph. D., Assistant Professor of Engineering Mathematics:

"The Mathematics of Life Insurance." University of Colorado Studies, Vol. IV., No. 1.

"On an Algebra in Three Units." University of Colorado Studies, Vol. IV., No. 3.

"A Theorem on Differential Functions." University of Colorado Studies, Vol. IV., No. 3.

"Convergence of Series." School Science and Mathematics, December, 1907. See also College of Engineering, page 31.

Fred B. R. Hellems, Ph. D., Dean of the College of Liberal Arts, Professor of Latin:

"The Epigram and Its Greatest Master, Martial." Poet Lore, Vol. XVI., No. 4.

"Lucretius and Haeckel Before the Riddles of the Universe." University of Colorado Studies, Vol. III., No. 3 and Vol. III., No. 4.

"A New Master of English Prose and Some Theories of Value." The Dial, Vol. XLI., p. 226 seq.

"Three Decades of the American University." The Dial, Vol. XL., p. 289 seq.

"The Greek World Under Roman Sway." The Dial, Vol. XLI., p. 110 seq.

"Greece under the Franks." The Dial, Vol. XLII., p. 306 seq.

"The Symbolist Movement in Literature." The Dial, Vol. XLIV., p. 374 seq.

Various other articles and reviews (perhaps twenty) in The Classical Journal, The Dial, The School Review, etc.

Junius Henderson, A. B., Curator of the Museum:

"The Tertiary Lake Basin of Florissant, Colorado." University of Colorado Studies, Vol. III., No. 3.

"The Mollusca of Colorado." University of Colorado Studies, Vol. IV., No. 2. Part II. in Vol. IV., No. 3.

"An Early Colorado Naturalist—Dennis Gale." University of Colorado Studies, Vol. V., No. 1.

"Annotated List of Natural History Works Especially Useful to Rocky Mountain Students." University of Colorado Studies, Vol. V., No. 3.

"The Sandstone of Fossil Ridge in Northern Colorado and Its Fauna." University of Colorado Studies, Vol. V., No. 3.

Vivian A. C. Henmon, Ph. D., Professor of Psychology and Education:

"Some Psychological Principles Underlying Primary Education." *Rocky Mountain Educator*, Vol. XIII., No. 11.

"Recent Tendencies in the Study of Educational Problems." *Rocky Mountain Educator*.

"Review of Seashore's 'Elementary Experiments in Psychology.'" *Journal of Philosophy, Psychology and Scientific Methods*.

Clyde L. King, M. A., Acting Professor of Economics and Sociology:

"Organization of the Military Forces of North Carolina During the American Revolution." *North Carolina Booklet*, 1908.

Oliver C. Lester, Ph. D., Professor of Physics:

"Text Book in The Integrals of Mechanics." *Ginn & Co.*, Boston. (In press).

Melanchthon F. Libby, Ph. D., Professor of Philosophy:

"Three Lectures on the Education of the Sentiments." *Rocky Mountain Educator*, Vol. XIV., Nos. 7, 8, and 9.

"Shakespeare and Psychognosis" (4 Essays.) *University of Colorado Studies*, Vol. III., No. 4, Vol. IV., No. 1, Vol. IV., No. 4, Vol. V., No. 4.

"The Alleged Growth of Altruism in the Civilized Period." *University of Colorado Studies*, Vol. V., No. 4.

George Norlin, Ph. D., Professor of Greek:

"The Doctrines of the Orphic Mysteries, with Special Reference to the Words of Anchises in Vergil's Sixth Aeneid." *Classical Journal*, Vol. III., No. 3.

"Review of Professor Seymour's Life in the Homeric Age." *Classical Philology*, Vol. III, No. 4.

John Burton Phillips, Ph. D., Professor of Economics and Sociology, Secretary of the College of Commerce:

"Social and Industrial Effects of Railroad Rate-Making." *University of Colorado Studies*, Vol. III., No. 4.

"Significance of the Banking Situation in Colorado." *University of Colorado Studies*, Vol. IV., No. 2.

"The Increase of Divorce." University of Colorado Studies, Vol. IV., No. 4.

"Scientific Assistance in Law-Making." University of Colorado Studies, Vol. V., No. 1.

"The Habitation Tax." University of Colorado Studies, Vol. V., No. 2. Read at the National Conference on State and Local Taxation, Columbus, Ohio, November, 1907.

"A Colorado Railroad Pool." University of Colorado Studies, Vol. V., No. 3.

"The Population of Colorado." University of Colorado Studies, Vol. V., No. 4.

Francis Ramaley, Ph. D., Professor of Biology:

"Silva of Colorado" (University of Colorado Studies): I. Trees of the Pine Family in Colorado, Vol. IV., No. 2; II. Poplars, Aspens and Cottonwoods, Vol. IV., No. 3; III. Woody Plants of Boulder County, Vol. V., No. 1.

"Botany of North-Eastern Larimer County, Colorado." University of Colorado Studies, Vol. V., No. 2.

"Color Variations in some Colorado Flowers." Plant World, XI, 1908.

"Plant Zones in the Rocky Mountains of Colorado." Science, N. S. XXVI., 1907.

"The Botanical Gardens of Ceylon." Popular Science Monthly, LXXIII, 1908.

George C. Taylor, Ph. D., Professor of English:

"The English Planctus Mariae." Modern Philology, April, 1907.

"Relations of the English Corpus Christi Play to the Middle English Religious Lyric." Modern Philology, July, 1907.

Frank E. Thompson, B. A., Secretary of the College of Education, Professor of Education:

"Formal Discipline and Waste in Education." Rocky Mountain Educator, December 1907 and March, 1908.

"Teaching Aims." Colorado School Journal, October, 1908.

"Foreword to Manual of Agriculture." Ginn & Co., 1908.

Edward Tuthill, M. A., Assistant in History:

"The Appeal of Alexius for Aid in 1095." University of Colorado Studies, Vol. IV, No. 3.

James F. Willard, Ph. D., Professor of History:

"The English Church and the Lay Taxes of the Fourteenth Century." University of Colorado Studies, Vol. IV., No. 4.

"The Scottish Raids and the Fourteenth Century Taxation of Northern England." University of Colorado Studies, Vol. V., No. 4.

The Summer School.

The Summer School has now been tried for five years, and has met the purposes for which it was established. The Faculty has been strengthened each year, until at the last session it was all that could be desired. Not only are strong men available from the regular staff, but the attractiveness of a Colorado summer enables us to procure eminent men from other institutions for incredibly small expenditure. The work has been strictly maintained on a high standard, worthy of the University's best traditions. The attendance has increased to one hundred and twenty nine; but, while the growth is creditable, it is not all that could be desired, nor all that the intrinsic merits of the School added to our exceptionally favorable location would lead us to expect. It would seem that the time has come for a decided addition to the number of courses offered, if the Summer School is to meet the requirements of its constituency. There is every reason for believing that in the near future the numbers in attendance will grow much more rapidly than in the past; and every effort should be made to meet this increasing demand. The first enlargement should be in the nature of advanced courses, wherein the teachers of our high schools could find additional opportunities to improve their equipment as specialists.

College of Commerce and College of Education.

These Colleges are essentially organizations within the College of Liberal Arts, arranged on an intelligent group system to meet two growing demands. The former is intended to equip students as business specialists, so to speak, who may become leaders in the economic life of the Commonwealth. The latter is intended primarily to insure a supply of really well equipped teachers for the secondary schools and to afford an opportunity

for advanced students to participate in pedagogical research. Special reports of both Colleges will be found elsewhere.

COLLEGE OF COMMERCE.

In the summer of 1906 the Regents founded the College of Commerce as a division of the College of Liberal Arts for those who desire a higher university education combined with a preparation for practical business life. It is interesting to note that the University of Colorado was one of the leaders in this movement in the United States, and that other large universities, notably Harvard and Northwestern, have now organized similar courses.

It is important to distinguish carefully between the College of Commerce and the ordinary business college. It is now a well recognized principle that the man who is to be a leader in business, and who is to manage large enterprises, involving great sums of money, must know something of law, economics, the markets of the world, and the location of available power and labor. He must also understand methods of capitalization, the problems of consolidation, and he must have a thorough knowledge of accounting and special training in finance. The course of study in the College of Commerce is thus even more difficult than the ordinary university course, and graduates therefore receive a special Certificate in Commerce in addition to the regular university diploma and the B. A. degree.

The Committee which was recently appointed to revise the curriculum will recommend that the work be reorganized on a new basis. Instead of a single fixed course, the student is to be allowed to select any one of the following six lines of study: Banking, Manufactures, Transportation, Trade, Journalism, Consular Service. All of these courses have some elements in common; for instance, in each one the student is required to study some law (the Law of Sales, Contracts, Bills and Notes, Corporations, etc.); Accounting; one foreign language; one science; and English Composition. Aside from this, each course has been worked out with special reference to the particular needs of those who intend to follow that branch for their life work.

In the absence of the Secretary, Professor John B. Phillips, Professor William L. Bailey was appointed Acting Secretary for

the second semester of the year 1907-1908, and Dr. S. Epstein for the year 1908-1909.

The changes in the Faculty of this College are enumerated in the Report of the Dean of the College of Liberal Arts.

It is intended, at an early date, to appoint a number of Lecturers in the College of Commerce to offer practical courses in the lines of Industry and Commerce in which they are proficient.

The significance of this department of the University is gradually becoming known and there is a substantial enrollment of incoming students this year, 1908-1909.

COLLEGE OF EDUCATION.

A College of Education, to be a division of the College of Liberal Arts, was authorized by the Board of Regents in January, 1908. The report of the committee on a course of study was adopted in April, and the College was regularly opened for work in September. This College was authorized and the course of study was adopted in view of a very definite demand for advanced professional training for teachers and the more serious study of educational problems. Such institutions have been established and are being established in leading universities all over the country. The consensus of educational opinion now is that the training of the educator for all grades of instruction or of supervision from the elementary school up shall not be inferior in system and comprehensiveness to that of persons in other professions. More specifically this consensus of opinion amounts to a demand that many of the teachers in the elementary schools, *all the teachers in the high schools*, and all persons engaged in supervision, shall have as a minimum of scholarship the equivalent of the B. A. degree, at least a speaking acquaintance with philosophy and psychology, and an intimate knowledge of educational matters. The demand is for professional schools of collegiate rank which shall afford to students who enter the educational field an opportunity for superior professional training, both practical and theoretical, for administrative, supervisory and teaching positions.

Inasmuch as teaching, in the professional sense, is service in an exceedingly complex field, the training required cannot be adequately given except in institutions of at least collegiate

grade, nor in less time than that required for a college course. It is therefore peculiarly fitting that a College of Education should be organized in connection with, and largely out of, the facilities of the College of Liberal Arts in the University. Here are found the most complete equipment for securing the requisite scholarship, the best atmosphere for the development of scientific power and professional spirit, as well as the most highly selected students with whom to work. College atmosphere gives a breadth of culture and has in it a suggestion of educational leadership which is to be found nowhere else. For the high-school teacher in particular a college training is demanded in practically all sections, as was shown by the Report of the Committee of Fifteen, as early as 1895, later by the Standards for Accrediting of the North Central and other Associations of Colleges and Secondary Schools, and recently in an emphatic way in the joint recommendations of the Committee of Seventeen on the Professional Preparation of High-School Teachers. In addition to this minimum requirement of academic preparation the same associations are insisting upon both general and special training of a standard given only in university departments. From the standpoint of the University, the training of teachers is one of its most important means of service. Regarding the essential services of a university to the commonwealth as the scientific investigation of the people's problems, the training of certain professional persons and of leaders in the various lines of activity, and the setting of culture standards, it at once becomes apparent that there is no more logical employment for state university endeavor than this training of expert educators. Teaching is one of the community's most important activities, and a rapidly growing body, both lay and professional, is expecting the same effectiveness in results achieved as is common in other fields. The university can make no mistake in training these leaders, and the student can make no mistake in taking such training.

The College of Education is designed to do the work indicated; it is a device of organization and administration in the College of Liberal Arts to secure to the prospective teacher studies along pertinent lines and in right proportions and sequence. Its students are assisted and directed in the choice and prosecution of their work from the time of matriculation

until graduation. They do not sacrifice anything of the culture of the Liberal Arts course, but through all the four years are growing professionally in efficiency and spirit. The curriculum is designed to furnish to the prospective teacher and leader in educational thought who would be thoroughly equipped for his work:

1. Courses calculated to give the broader acquaintance with knowledge and the culture rightly expected of the college graduate.

2. Courses in the subjects he expects to teach, of such character and so organized in sequence that when graduated he will be in some measure an authority in his branch.

3. Courses that will give:

- (a) Knowledge of the constitution and needs of society.
- (b) Knowledge of child and adult natures and their possibilities for modification.
- (c) Knowledge of the educational values of the various school subjects.
- (d) Knowledge, both general and specific, of the arts of instruction—this knowledge to come in large measure from actual practice in teaching.
- (e) Knowledge of educational history and its significance, for both the present and the future.

The course of study covers a period of four years, 120 hours of credit being required for graduation. Graduates receive the degree of Bachelor of Arts and a Bachelor's Diploma in Education, which latter is to be a certificate of proficiency in education and a guarantee of efficiency in teaching. The requirements for graduation are as follows:

1. Prescribed subjects, 20 hours.

English	10 hours
Classical Languages, Science or Mathematics...	10 hours

2. Group Electives.

Subjects the student expects to teach.....50 hours

3. Professional Subjects.....30 hours

The professional training must include the following:

- (a) Psychology6 hours
- (b) History of Education.....6 hours

- (c) Science and Principles of Education.....3 hours
- (d) Elementary Schools or Secondary Schools..3 hours
- (e) Practice Teaching and Special Method.....6 hours
- (f) Elective courses amounting to six hours
in one or more of the following: Philosophy,
Sociology, Psychology, Education.....6 hours

4. Free electives20 hours

For the doing of the work of this College the entire facilities of the College of Liberal Arts can be brought into play and the public schools of Boulder are largely laid under tribute. The question of practice teaching, the vexing problem of all training institutions, has been solved quite satisfactorily by a very simple device, namely, in the selection from the larger classes in the public schools of those pupils whose personality is such as to bring into the foreground the educational problems that confront the teacher. Each of these pupils is to some extent a subject for special study and treatment; hence the novice teacher's attention is at once forced where it properly belongs, upon the problem of how children learn rather than upon how teachers teach. These pupils, grouped into classes, are placed in charge of the student teachers under the immediate supervision of the regular class teacher, the school principal and a member of the faculty of the College of Education.

Many students have already entered the courses prescribed in the College of Education.

COLLEGE OF ENGINEERING.

The growth and development of the College of Engineering during the past two years have been very satisfactory. The number of students increased from 176 in 1905-06 to a registration of 271 in 1907-08. Four instructors have been added to the faculty and important additions have been made to the laboratories. The new Engineering Shops have materially increased the facilities for instruction.

The only change of importance in the requirements for graduation has been to substitute six hours foreign language and four hours English for the ten hours of foreign language formerly required.

The Journal of Engineering, published by the associated Engineering Societies, is a very creditable publication. Graduates of the College of Engineering have been placed in good positions and the credit and reputation of the University have been increased. The establishment of a timber-testing station by the U. S. Department of Agriculture, Department of Forestry, has added to the facilities for instruction.

Buildings.

The new heating, lighting and power plant should be completed at the earliest possible date and the old plant should be removed from the Engineering Building. This will take the dirt away from the class and drawing-rooms and laboratories, and will give some very much needed room to the electrical and mechanical engineering laboratories.

The installation of a new Engineering Research Laboratory will require additional space. This can be obtained by adding to the present Engineering Shops. The Engineering Building is now crowded and the increasing number of students will demand additional room at an early date.

Instructional Force.

The following table shows the date of appointment and official position of the members of the instructional force, exclusive of assistants, of the College of Engineering:

Civil Engineering Department.

Milo S. Ketchum, C. E. (Illinois) Professor.....	Sept. 1904
Dean	Sept. 1905
Alfred P. Poorman, B.S. (C.E.) (Illinois) Instructor...	Sept. 1907
Clement C. Williams, B.S. (C.E.) (Illinois) Instructor..	Sept. 1907

Electrical Engineering Department.

Herbert S. Evans, E. E. (Nebraska) Professor.....	Sept. 1905
David R. Jenkins, E. E. (Colorado) Instructor.....	Sept. 1905

Mechanical Engineering Department.

John A. Hunter, M. E. (Pa. State) Professor.....	Sept. 1904
Axel E. Berggren, B.S. (M.E.) (Iowa State) Instructor.	Sept. 1908
William Black, Jr., B. S. (M. E.) (Illinois) Instructor..	Sept. 1908
George L. Sullivan, B. S. (M. E.) (Nebraska) Instructor.	Sept. 1908

General Engineering Drawing.

Jacob H. Wallace, M. E. (Missouri) Instructor.....Sept. 1905
Assistant Professor.....Sept. 1908

Engineering Mathematics.

Saul Epstein, Ph. D. (Zurich) Instructor.....Sept. 1905
Assistant Professor.....Sept. 1906
James S. Mikesch, A. B. (Minnesota) Instructor.....Sept. 1908

Howard C. Ford, C. E. (Colorado) Instructor in Civil Engineering, resigned in June, 1907, to accept the position of Assistant Professor of Irrigation Engineering and Surveying in Iowa State College. George R. Moore, Instructor in Shop Work, and H. Gerald Venneman, B. S. (M. E.) (Colorado) Instructor in Mechanical Engineering, resigned their positions in June, 1908, the one to accept professional employment, the other for another position in the University.

Civil Engineering Department.

The instruction in this department has been strengthened by the addition of another instructor and by the increase in the equipment. A course in Bacteriology has been added in the junior year, thus making it possible to put the work in Sanitary and Water Supply Engineering on a better basis. A course in Reinforced Concrete Construction has been added to the work of the senior year. The increased equipment in the Applied Mechanics Laboratory materially improves the opportunity for instruction in the department.

Electrical Engineering Department.

The Electrical Engineering Department has made excellent progress. Several important additions have been made to the equipment and the efficiency of the instruction has been improved. The department should be provided with the necessary apparatus for making commercial tests and for standardizing electrical instruments.

Mechanical Engineering Department.

The erection of the Shops Building, the added room and equipment for mechanical engineering laboratories, and the increase of instructors places the department of Mechanical

Engineering in a much better position than before and hence its work should be much improved.

Chemical Engineering Department.

The course in Chemical Engineering has been changed so that students in this department are now given the same instruction in Electrical Engineering as is given to the Mechanical Engineering students. Quite a number of students have registered in Chemical Engineering that desire to take a course in Industrial Chemistry. These students have in a number of cases transferred to the College of Liberal Arts in order that they might take more work in Chemistry than was offered in their course. A course in Industrial Chemistry should be offered either in the College of Engineering or in the College of Liberal Arts.

General Engineering Drawing.

The work in this department has made very satisfactory progress. The freshman drawing room in the Engineering Shops is one of the best in the country, the lighting being almost perfect. The instruction given in Mechanical Drawing and Descriptive Geometry is excellent. A course in Free-hand Drawing has been added to the work in this department.

Engineering Mathematics.

The Department of Engineering Mathematics is now in excellent condition, the teaching staff having been materially strengthened this year by the appointment of an additional full instructor. Only a small percentage of students fail to obtain grades in Mathematics.

Engineering Language.

With the time available it was found impossible to give satisfactory courses in Rhetoric. The language work of the freshman year was therefore changed so that each student now takes six hours work in a foreign language and four hours work in Rhetoric. The courses in foreign languages and Rhetoric are especially arranged for engineering students. This change promises to give most excellent results.

Publications.

The following books and papers have been written by the members of the Faculty of the College of Engineering during the past two years:

Books.

Dean Milo S. Ketchum:

"The Design of Walls, Bins and Grain Elevators." Published by Engineering News Publishing Co., 1907.

"The Design of Highway Bridges." Published by Engineering News Publishing Co., 1908.

Articles.

"The Toxaway Dam." University of Colorado Journal of Engineering, No. 3, 1907.

"The Pressure of Earth-Filling on the Bracing of Trenches." Trans. Am. Soc., C. E., Vol. LX., 1908.

"Calculation of Stresses in Solid Arches." University of Colorado Journal of Engineering, No. 4, 1908.

Professor Herbert S. Evans:

"High Voltage of Incandescent Lamps." University of Colorado Journal of Engineering, No. 4, 1908.

Assistant Professor Jacob H. Wallace:

"Descriptive Geometry of the Worm and Gear." University of Colorado Journal of Engineering, No. 3, 1907.

"Cylinder Port Velocities." Am. Soc. Mech. Engrs., 1907.

"Angular Variations between a Shaft Governor and the Fly Wheel." University of Colorado Journal of Engineering, No. 4, 1908.

Assistant Professor Saul Epstein:

"Graphical Illustration of Convergence of Series." University of Colorado Journal of Engineering, No. 4, 1908.

"Probable Error of Measurement of a Unit of Length." University of Colorado Journal of Engineering, No. 3, 1907.

Mr. C. C. Williams:

"Sewage Disposal of Boulder, Colorado." University of Colorado Journal of Engineering, No. 4, 1908.

"Systematic Analysis of Cost Data." Engineering-Contracting, January 1, 1908.

Mr. A. P. Poorman:

"The New Campus." University of Colorado Journal of Engineering, No. 4, 1908.

Mr. Howard C. Ford:

"Reinforced Concrete Arch." University of Colorado Journal of Engineering, No. 3, 1907.

Graduates of the College of Engineering Appointed to University Positions.

The following graduates of the College of Engineering have been appointed to and are now holding university positions as follows:

John C. Fitterer, B.S. (C.E.) 1904, Professor of Civil Engineering, University of Wyoming, 1908.

Charles E. Rowe, B.S. (C.E.) 1900, Professor of Mining Engineering, University of Texas, 1906 to date.

Charles C. Cochran, B.S. (M.E.) 1906, Assistant Professor of Machine Drawing, University of Kansas, 1906 to date.

Howard C. Ford, B.S. (C.E.) 1904, C.E. 1907, Assistant Professor of Irrigation Engineering and Surveying, Iowa State College, 1907 to date.

Frederick W. Doolittle, B.S. (C.E.) 1907, Instructor in Theoretical and Applied Mechanics, University of Illinois, 1908.

Herbert D. Dwight, B.S. (E.E.) 1904, Instructor in Mechanical Drawing, University of Oklahoma, 1908.

David R. Jenkins, B.S. (E.E.) 1904, E.E. 1907, Instructor in Electrical Engineering, University of Colorado, 1905 to date.

Harry J. Kesner, B.S. (C.E.) 1907, Instructor in Bridge Engineering, University of Minnesota, 1907 to date.

Fred H. Kroger, B.S. (E.E.) 1904, Instructor in Electrical Engineering, Cornell University, 1906 to date.

Harvey E. Murdock, B.S. (M. E.) 1906, M.E. 1908, Instructor in Theoretical and Applied Mechanics, University of Illinois, 1906 to date.

Howard E. Phelps, B.S. (C.E.) 1907, Instructor in Civil Engineering, University of Pennsylvania, 1908.

Graduates of the College of Engineering in Commercial Positions.

Most of the graduates of the Electrical Engineering Department have secured positions with the General Electric Co.,

Schenectady, N. Y.; the Westinghouse Manufacturing Co., Pittsburgh, Pa.; or with the Western Electric Co., Chicago, Ill. Electrical Engineering graduates have also obtained positions in the signal departments of railroads, with power development companies, and in other commercial positions.

The graduates of the Civil Engineering Department have secured positions in the bridge and building departments of railroads, in the engineering departments of railroads, with bridge companies, with the U. S. government in the Reclamation Service and the Geological Survey. Civil Engineering graduates have also obtained positions with irrigation engineers and power companies in Colorado and surrounding states.

Graduates of the Mechanical and Chemical Engineering departments have found employment with railroads, with manufacturing concerns, chemical works, beet sugar factories and in other commercial positions.

Many of the former graduates of the College of Engineering have now reached positions of responsibility in engineering operations, and this fact together with the improved standards of instruction has made the demand for graduates greater than the supply.

Growth of the Different Departments.

The number of students in the different departments for the past six years is given in the following table:

	1903-04	1904-05	1905-06	1906-07	1907-08	1908-09
Civil Engineering.....	41	43	59	68	95	108
Electrical Engineering	87	100	87	112	128	119
Mechanical Engineering.....	14	18	16	21	26	32
Chemical Engineering.....	..	12	14	14	22	11
Total	142	173	176	215	271	*270

*Actual number of students October 1, 1908. The enrollment will be considerably increased.

Engineering Research in the University of Colorado.

The following research work has been completed, is now in progress, or will be carried on by the different departments if the necessary funds are available.

Civil Engineering Department.

Work Completed or in Progress.—During the last college year work has been carried on by the department on "Pumping for Irrigation." This work was done as thesis work, and the results will be ready for publication at an early date as a special engineering bulletin.

In 1906-07 a series of experiments was carried on in the Civil Engineering Laboratory on "The Comparative Value of Slag and Sandstone as a Concrete Aggregate." This work was done in co-operation with the Union Pacific Railroad. An abstract of the results of this investigation was published in the University of Colorado Journal of Engineering, No. 4

In 1907-08 a series of experiments was carried on in the Civil Engineering Laboratory on "Bond Stress of Steel and Concrete."

Experiments are now under way in the Civil Engineering Department on "The Pressure of Wheat in Bins." Professor Ketchum carried on a series of experiments while he was at the University of Illinois, and in 1907 published a book entitled "Design of Walls, Bins and Grain Elevators," which contains a description of the above tests and a resume of all the tests made up to date. This investigation will be carried on by Mr. C. C. Williams, Instructor in Civil Engineering, as thesis work under the direction of Professor Ketchum.

This is a very important line of investigation and one in which the University has an opportunity to make a reputation and to render a considerable service to the State. A fund of about \$300 is needed to carry on this work the present year.

Mr. A. P. Poorman, Instructor in Civil Engineering, is now at work on "Tests of Colorado Building Stone" as a thesis for the degree of Civil Engineer. A fund of \$200 is needed to carry on this work.

During the past year the department has made a study of the sewerage system of Boulder, Colorado. This work was done by Mr. C. C. Williams and by the senior students in connection with thesis work. A short article on this subject was published in the University of Colorado Journal of Engineering, No. 4.

In addition to the above, Professor Ketchum has contributed several articles to technical journals and has published two tech-

nical books. The book entitled "The Designs of Walls, Bins and Grain Elevators" is the first book written on these subjects, and has been well received in this country and abroad. The book entitled "The Design of Highway Bridges" is now ready for distribution. The book has been prepared especially for the author's classes.

Timber Testing Station.—The U. S. Department of Agriculture, Division of Forestry, in co-operation with the University, has established a Timber Testing Station in connection with the Laboratory of Applied Mechanics of the Civil Engineering Department. Similar laboratories have already been established at Yale University, Purdue University, University of California, and the University of Washington.

The equipment of the Applied Mechanics Laboratory has been increased by the addition of a 200,000-lb. Riehle Beam and Column Testing Machine that is capable of testing a beam sixteen feet long or a column eight feet long; a 30,000-lb. Olsen Tension Testing Machine for use in making standard compression and tension tests; a compressometer; a drying oven; a power planer and a power saw; and other necessary minor apparatus for making timber tests. This additional apparatus makes the equipment of the Applied Mechanics Laboratory equal to that of any of the timber testing laboratories at other universities.

In addition to the engineering staff of the Civil Engineering Department, the Forest Service will maintain at the laboratory an experienced timber testing engineer, with a corps of assistants. All the facilities of the laboratory will be available for the purposes of instruction and investigation by the department. Varied tests on many different kinds of timber will be constantly in progress. These tests will be conducted in accordance with the methods developed by the expert engineers of the Forest Service, and will form a part of the work of the Forest Service covering the whole United States. This laboratory offers facilities for instructional purposes second to none in the country.

Work to be Undertaken.—In addition to the above, the Civil Engineering Department should take up the following lines of investigation:

Road Laboratory.—A road laboratory should be installed to

test the different road building materials in the state. Work of this character is being carried on by the University of Illinois, Iowa State College, and other institutions, and similar work in this State should prove of inestimable value. In connection with the laboratory work, investigations should be made on "The Use of Colorado Crude Oil for Roads;" sample roads should be built and a special study should be made of road building in Colorado. A completely equipped road testing laboratory can be installed for approximately \$5,000 exclusive of room accommodations.

Irrigation Investigation.—Experiments should be carried on by the department on the duty of water; the methods of treating alkali land; and the work on "Pumping for Irrigation" should be completed. Experiments should be made on improved methods for measuring water.

Power Investigation.—Investigation should be made on the flow of water in conduits; on the discharge of large weirs; on the flow in large pipes under pressure, and other problems of a similar character. The University of Colorado is well located for this work, which offers excellent opportunity for research in lines that will be of great service to the State.

Sanitary Survey.—The present condition of the sewerage and water supply systems of most of the towns in the State is very unsatisfactory. The State of Colorado should follow the lead of New York, Ohio, and other Eastern states, and should place the construction of all sewerage and water supply systems under the direction of the State Board of Health, with the consulting engineer of the Board located at the State University. The Civil Engineering Department should also be prepared to make commercial analyses of sewage and water.

Commercial Tests.—In connection with the Laboratory of Applied Mechanics considerable work can be done in testing special forms of construction and making commercial tests that cannot be carried on by the government. This would include tests of timber, mine props, brick, stone, cement, concrete, etc. In connection with thesis work it will be possible to carry on investigation in different lines that will be of considerable scientific interest. To carry this work on properly will require a special appropriation for materials and apparatus.

Electrical Engineering Department.

Work Completed or in Progress.—The department has accumulated a considerable amount of data of value to the general public. Some of this information has been printed and other data will be ready for publication at an early date.

Incandescent Lamps.—Tests have been made of the light distribution, efficiency, and length of life of the different types of incandescent lamps. Some additions to the present equipment of the photometer room in the way of modern improved appliances, are needed to carry on this work satisfactorily.

Shades and Reflectors.—The effect of using different shades and reflectors on incandescent lamps has been studied, and the relative values for different purposes determined. The importance of this subject is but little realized by the average user of electric lights.

Accuracy of Wattmeters.—A report of tests of various types of wattmeters as to accuracy under wide changes of load, also a study of the effect of abnormal voltage conditions, such as frequently obtain on commercial lines, was published in the University of Colorado Journal of Engineering, No. 4, and reprinted in the Western Electrician.

Electrolitic Action in Reinforced Concrete.—Tests on the electrical conductivity of concrete and the electrolitic corrosion of steel anchors imbedded in concrete were made in connection with thesis work. An abstract of this thesis was published in University of Colorado Journal of Engineering, No. 2. Additional experiments should be made over a period of years and through a wide range of practical conditions.

Railroad Signalling.—A study has been made in connection with thesis work on Circuit Determinations for Automatic Block Signals. This work was done in co-operation with the Union Pacific Railroad on their track near Denver.

Mercury Arc Rectifier.—Special study has been made of the mercury arc rectifier. This is a very important subject on account of the substitution of alternate current systems for direct current system. The department has only one type of this appliance and will need additional apparatus to carry on systematic tests.

Work to be Undertaken.—In addition to the above the Elec-

trical Engineering Department should take up the following lines of investigation:

Electric Railway Tests.—The University of Colorado should have an electric railway test car for student and experimental research work. Such car is owned jointly by the University of Illinois and the Illinois Valley Traction Co. and has proven of great value to both parties. The cost of such a car to the University cannot be definitely determined until certain matters of detail are taken up with the manufacturing company. The University of Illinois test car cost approximately \$6,000. An electric test car operated on the new Denver-Boulder line should prove particularly valuable in view of the fact that this is an alternating current system, while the others in use are on direct current system.

Lightning Protection.—Tests should be made on protective devices as applied to high tension transmission lines. The mountainous sections of this State are subject to lightning discharges and a careful study of this problem would be of great commercial value. To carry on this work requires an initial appropriation of \$1,000.

Electrical Standardizing Laboratory.—A standardizing laboratory is needed in Colorado to make commercial tests of instruments as well as for experimental purposes. The establishment of such a laboratory would enable the College of Engineering to keep in close touch with the electrical work in the State and surrounding country. The cost of this laboratory complete is approximately \$5,000, while an initial start might be made with \$2,500.

Electrical Heating and Cooking Devices.—A careful study should be made of the various types of electrical heating and cooking devices to determine their safety, efficiency, and relative cost of operation. This work would require initial appropriation of \$250.

Electric Lighting of Country Homes.—This problem is receiving considerable attention throughout the country, and is of considerable importance in this State. The sources of power for these lighting plants include water power, wind mills, gasoline engines, etc. To make a study of this problem there should be a test station on the campus and a second one out on the plains,

and these should include tests extending over a period of years. Such stations could be equipped at a cost of about \$1,500.

Mechanical Engineering Department.

Work Completed or in Progress.—The department has done some work on the analysis of Colorado coal. An abstract of a thesis on this subject was published in the University of Colorado Journal of Engineering, No. 2.

Work to be Undertaken.—The analysis of Colorado coal should be continued and completed, and the following lines of investigation should be taken up:

Lignite Coals.—An investigation should be made of the method of burning lignite in order to determine the most efficient conditions. Very little work has been done along this line, and the users of lignite are now operating under very wasteful conditions.

Gas Engines.—A study should be made of gas engines and air compressors in order to determine the drop in efficiency due to altitude.

Power Developments.—The department should make a study of the power developments of the State. This work should be taken up in conjunction with the Civil and Electrical Departments.

Summary.

Special attention is called to the following recommendations, most of which have been outlined in the preceding discussion:

Graduate Courses.—Graduate courses are now offered in the different engineering departments as described in the University catalogue. The courses in Power Plant Engineering, Gas Engine Design, Hydraulic Design, Irrigation Engineering Structures, Fuel Analysis, Reinforced Concrete Construction, Electrical Power Plant Design, Mine Buildings and Mill Structures, and Electric Traction especially meet the needs of Colorado and additional facilities should be provided for this work.

Engineering Experiment Station.—In addition to the work now being done by the Timber Testing Station, the Civil, Electrical, and Mechanical laboratories, and the departments of Chemistry and Geology, provision should be made for the following lines of investigation: Road Laboratory; Irrigation Investiga-

tions; Power Investigations; Sanitary Survey in co-operation with the State Board of Health; Commercial Testing Laboratory; Tests of Colorado Building Stones; Tests of the Pressure of Grain in Bins; Tests of Reinforced Concrete; Tests of Incandescent Lamps; Tests of Shades and Reflectors; Tests of the Accuracy of Wattmeters; Tests of Electrolysis of Iron and Other Metals; Railroad Signalling; Electric Railway Tests; Lightning Protection; Electrical Standardizing Laboratory; Tests of Electric Heating and Cooking Devices; Electric Lighting of Country Homes; Tests of Coal; Study of Lignite Coals; Tests of Gas Engines; Study of Clays in Connection with the Manufacture of Cement, Lime and Brick; Electricity as Applied to Mining; Tests of Mine Timbers.

SCHOOL OF MEDICINE.

At the end of the session of 1906-1907, at his own earnest wish, Dr. Luman M. Giffin resigned his deanship, retaining, however, the Chair of Surgery and the position of Hospital Superintendent. Dr. William P. Harlow, who had joined the Faculty two years previously as Professor of Clinical Diagnosis, was selected to succeed Dr. Giffin. Dr. Martin E. Miles resigned the Chair of Anatomy, September, 1907, and was succeeded by Dr. Edward F. Dean. Dr. Dean had been at the head of the same department in the Medical School of the University of Denver for about ten years. September, 1907, Dr. O. P. Johnstone was succeeded in the Chair of Pathology by Dr. Ross C. Whitman. At the same date Dr. Alvin R. Peebles was added to the Faculty as Instructor, later as Assistant Professor of Medicine and Director of the newly established Clinical Laboratory at the Hospital. Dr. Peebles had served for several years in a similar capacity in the Medical Clinic at Ann Arbor. At the close of the last year Dr. Arthur McGugan resigned the Chair of Neurology and Psychiatry and has been succeeded by two lecturers, Dr. Edward Delehanty, one of our own alumni, and Dr. George E. Neuhaus, a graduate of the University of Berlin. Also Dr. Dessie B. Robertson was succeeded in the Chair of Bacteriology by Dr. Clough T. Burnett, Assistant Professor, who has had several years' experience in teaching this subject in the Medical department of the University of Michigan. The following additional changes are to be noted: September, 1907, the resignation of Dr. John A. Russell, Instruc-

tor in Minor Surgery and Bandaging, the appointment of Dr. John Andrew, Instructor in Anatomy, and Dr. Frank R. Spencer, Instructor in Neurology; September, 1908, the appointment of Dr. Eugene H. Robertson, Lecturer in Electro-Therapeutics, and of Dr. William W. Grant, Lecturer for one year in place of Dr. Charles S. Elder, who is on leave of absence. Doctors Reed, White and Campbell have been made Instructors.

Attendance.

For the current year the registration is still far from completed; at the end of the first week of the session, however, the registration showed a large increase.

The Six Years' Course.

By vote of the Regents, the department was last spring committed to the policy of requiring two years' preparatory work for admission to the School, this change to take effect with the opening of the session of 1910-1911. The six years' course thus demanded will lead to two degrees, viz., A.B. and M.D. This increase in admission requirements is necessitated by the rapidly extending range of the modern medical curriculum, and has already been adopted by many of the best schools of the country, and it may be added that many of the State Examining Boards even are committed to the increased requirement, so that, even had we wished to remain on the present four-year basis, we were driven to the change. Any concern which might have been felt as to the effect of the change on the attendance has been largely removed by the character of the registration for the current year. A very large proportion of this year's entering class have already had two or more years of college work, while an equally satisfactory number of six-year men are this year beginning their work in the college department.

The Dispensary.

Some years ago a dispensary was for a time maintained in the present Medical building, but on account, perhaps, of the rather remote position of the building, and the then small population of the city, the dispensary proved unsatisfactory, and was abandoned. Last spring, a new dispensary was opened in the heart of the city, and though it has been in operation only a few

months it has already proved an extremely valuable addition to our clinical facilities.

Ward Walks.

At the same time with the opening of the dispensary, "Ward Walks" were for the first time instituted in the Hospital. This extremely important element in the clinical training of students was largely made possible by the Regents, in voting a special rate to clinical, as opposed to private, patients, in the Hospital, thus making available a much larger number of patients for clinical teaching. It is expected that, as time goes on, and as patients discover that clinical cases in the Hospital receive the same careful attention as that accorded to private cases, and that the use for clinical teaching does not entail any great hardship, a steadily increasing number of patients will choose to avail themselves of the advantage of the lower rate.

The Clinical Laboratory.

A third important addition to the teaching facilities of the Medical School is found in the new clinical laboratory, which was opened last March in the Hospital. A large room on the ground floor of the Hospital has been fully equipped for making the fullest possible pathological, bacteriological and chemical examinations. For the first time it has become possible to fully train our students in this extremely important branch of medical science.

The Rearrangement of the Curriculum.

Finally, the studies of the third and fourth years have been separated, doing away with the arrangement by which alternate classes received the work of these years in a sequence the reverse of the normal, and making possible the arrangement of a curriculum for these years graded correctly and with regard to the proper sequence of studies, as is done in the first two years.

It would be difficult to say which of these four matters, the dispensary, the ward walks, the clinical laboratory, and the improved curriculum, is the most important individually, but there can be no manner of doubt that the four taken together constitute the most important and far reaching change for the better ever made by the department. It puts our teaching methods on a par with the best modern practice.

New Buildings and Equipment.

During the summer new quarters have been erected for the department of Anatomy, thus making available for classroom purposes the quarters formerly occupied. The improvement thus brought about is twofold. It moves the department from its former central location to one which is far better fitted for the purpose by its very remoteness, and the new building, even though designed to be only temporary, is better adapted to the purpose for which it is to be used, having been especially designed for the same. In conjunction with the new building there has been installed a freezing plant able to accommodate about thirty cadavers. The material can thus be cared for in the way which fits it best for the use to which it is to be put, and the new method will do away with the most objectionable features of the work of this department. We are advised that this freezing plant is the only one of its kind west of Kansas City. The Department of Anatomy has also added to its equipment many valuable charts, models, and specimens, to be used in teaching. During the past year the equipment of the Department of Pathology has been brought up to date, and the museum has received and is still receiving much new and valuable material. The latter will equip the department very fully for undergraduate teaching. Still further additions to the museum are, however, greatly needed to enable us to offer advance work to special students, and to offer facilities for research work in this branch. Additions to the library are also still much needed. The department of bacteriology is making large additions to its equipment, so that within a short time it also will be on a very favorable footing.

The New Building.

Constant changes in the use to which our available space is to be put have been necessitated by our rapidly increasing class requirements. One of the rooms formerly used as a private laboratory has been fitted up as a dark room for photography, of which large use is now being made as an adjunct to teaching. Another private room is used as the pathological museum, a use for which it is by no means well adapted. A third room, formerly used as private laboratory and preparation room by the Department of Pathology, being much too small for the purpose, has been changed into the greatly needed department office; the

laboratory has been moved into the quarters formerly used by the Department of Pharmacology, the latter being driven to share quarters with another department. The increased crowding thus brought about leaves "standing room only," with no space to install or use important equipment. The new building, already needed for many years, is thus rapidly becoming an absolute necessity, and it is to be hoped that the incoming Legislature will take steps to provide immediately for our needs in this direction.

The Removal of the Two Last Years of the Course to Denver.

With the accomplishment of this reform, the removal of the two last years to Denver, the most greatly needed, perhaps, of our present requirements, the department will be placed on an equal footing with any other school in the country. It is greatly to be hoped that the present Legislature will afford this opportunity. Certainly the interests of the State, in a matter so important as this, would seem to take precedence over all other interests which have to be considered.

Animal House.

A very pressing need, which can be very easily and cheaply met, is that room should be found somewhere for an animal house, in order that we may breed our own experimental animals, and so have an abundance of this kind of material at a very low price, instead of having, as at present, very scanty material at an exorbitant price.

A State Hygienic Laboratory.

The Department wishes to renew most emphatically the recommendation of two years ago, for a State Hygienic Laboratory, to be run in connection with the Medical Department. The importance of such an institution to the State at large can hardly be estimated. It would afford not only the means for a prompt and efficient fight against such diseases as Typhoid Fever (the incidence of which in Colorado is abnormally high), Tuberculosis, Diphtheria, Scarlet Fever, etc.; but it would afford an invaluable opportunity to give instruction to our students at first hand in the science of prophylaxis, and general preventive medicine, a branch of medicine, the successful practice of which has more to do with the general welfare of a community than any other. The most important and far-reaching researches and discoveries in medicine today are along the lines of preventive medicine, and

far-sighted philanthropists have in late years given generously to projects having this aim, as witness the McCormick and Rockefeller Institutes for Medical Research. Important work in the same lines, which is of special importance to the people of Colorado, as having a local bearing, would be made possible by the establishment of such a laboratory here, and the prosecution of such investigations might easily be of enormous importance to the whole population of the State. A very modest annual appropriation to cover the necessary salaries and clerk hire is all that is needed to initiate the work.

THE SCHOOL OF LAW.

During the past two years there has been a large increase in attendance in the Law School and the registration for the current year will far exceed any previous one. The average age of the matriculants is greater than in preceding years, while the continued increase in the percentage of college-trained students in the Law School indicates a gratifying tendency toward higher scholastic preparation on the part of those about to enter upon a professional career. Increased effectiveness in the end must result from this better preparation, which the Faculty has consistently endeavored to encourage.

Judge John Campbell having resigned as dean, Professor John D. Fleming, sometime Secretary and Acting Dean, was in the spring of 1908 appointed to the position of Dean of the School. Judge Campbell will continue his connection with the School as Lecturer upon the Law of Municipal Corporations. Professors Fleming, Reed, Pease, and Willard continue as resident Professors of Law. Fred G. Folsom has been added to the Faculty as Instructor in Law and Judge of the Moot and Practice Court. The regularity and efficiency of the work in the Moot and Practice Court has been greatly promoted. Mr. Edwin Van Cise, of the Denver Bar, has continued uninterruptedly in his work in regular course in the Colorado Code of Civil Procedure, and Mr. Robert S. Morrison and Mr. William H. Bryant of Denver have supplemented the regular class room instruction in the Law of Mines and Mining, while Mr. James W. McCreery of Greeley has continued his lectures on the Law of Irrigation and Water Rights. Increased facilities for instruction in the Law of Irrigation have for the current year and for the future been provided. When to

the foregoing are added the special lecturers, and instructors in regular attendance, for the teaching of other practical topics of the law, and when, moreover, the real and organic connection subsisting between the Law School and the other Departments of the University is considered, and the opportunities thus afforded the law students for study and improvement in collateral and cognate branches, the Regents feel that the Law School gives assurance of a high degree of usefulness and efficiency.

We repeat the expressions of our last report upon the general plan of teaching. The course is based upon the "case system" but remains a conservative combination of such system with text-book instruction and lectures by eminent practitioners. Such course, while national in its aim and scope, teaching the body of Anglo-American Law, is yet of special value to Colorado students and to all those who expect to practice in the mining and arid regions.

But few students now come to the bar examination for license to practice in this and other states from private offices. The private instructor in law is almost as rare as the old fashioned "preceptor" in medicine. The law student seeks the law school, and the University meets this want by offering to the sons, and daughters also, of the people, the opportunity of fitting themselves at nominal cost for useful and varied service. This has come to be a matter of common observation. A questionnaire recently sent out by one of the leading universities of the country (Illinois), elicited replies from nearly a thousand members of the legal profession, in cities and towns, from individuals and representatives of firms large and small, and those engaged in general and special practice. But seven of this number expressed a preference for preparation for the bar in a private office. The responses also showed the opinion to be almost universal that the only sensible thing for a young man to do who desires to become a lawyer is to enter the best law school accessible, and, having entered, to give his entire time to the work of the school and not attempt to combine it with work in a lawyer's office, or, indeed, with work in any other place unless compelled to by stress of circumstances.

The needs of the Law School are many; the most urgent being additions to the law library and a law school building. Through the munificence of a citizen of the State, Senator Simon Guggenheim, a building suitable to the needs of the Law School,

is promised by the beginning of the next school year in September, 1909. Until this time the Regents are not disposed to increase largely the number of books in the law library as the space in the quarters occupied by the School now available is hardly sufficient to accomodate the books at present on hand, some 3,500 volumes, and the students in attendance. When the new building is ready for occupancy the Faculty will request that the needs of the library be supplied as well as other pressing wants of the School.

The School continues a member of the Association of American Law Schools, an association of most of the leading law schools of the country, formed in 1900 for the purpose of elevating and maintaining the standard of legal education in all the states. It is advisable that a representative of the School should continue to be in attendance at the annual meetings of this association. The reports and proceedings of these meetings, held every year in conjunction with the meetings of the American Bar Association, furnish valuable data upon the subject of legal education throughout the country.

UNIVERSITY STATUTES. SEAL.

The rules of the Regents are being carefully revised and changes in the organization of the General Faculty have already been made. The organization includes: Advisory Council, consisting of the deans of the various colleges and schools; Senate, consisting of the resident heads of departments of all faculties; Faculties of Colleges and Schools, each consisting of the professors of the College or School. The rules of the Faculties have been revised and brought up to date. The organization of the Senate has been completed. For efficiency of administration the Senate has the following committees: General Conduct of Students; Student Organizations and Social Life; Student Assembly and the Dormitories and Dining Hall; Student Publications; Intercollegiate and other Oratorical and Debating Contests; The Bennett Prize; Athletics; High-School Day; Accrediting High Schools, Entrance Regulations, High-School Conference; Recommending for Honorary Degrees; Carrying out Plans of Commencement Week. The various Senate Committees relating to student interests are making a careful analysis of their problems and are looking toward efficient work. The Faculty of the Col-

lege of Liberal Arts has a Committee on reorganizing the scheme for the Bachelor's degree, a committee on college problems for discussion, and a committee on individual care of students, especially of freshmen. The Engineering, Medical and Law faculties already have more or less comprehensive schemes for the care of students.

A new seal has been adopted by the Regents, and it has been in use since September, 1908. The old seal was mainly a copy of the State seal, and the seal for some time used on University literature was never adopted by the Regents.

ORATORY AND DEBATE.

Since 1906, the oratorical and debating interests have been gaining ground steadily and very rapidly. Aside from the University literary and debating societies operating under student management, there are the oratorical and debating activities managed directly by the Senate Committee on Oratory and Debate. In 1906-7 there were held, under the direction of this Committee, the Annual Prize Oratorical Contest and one interstate debate, with the University of Utah. In 1907-8, besides the Oratorical Contests, there were held five inter-school and inter-class prize debates and interstate debates with the State Universities of Utah, Kansas, and Missouri. In 1908-9 there will be held, besides the Oratorical Contest and the inter-school and inter-class debates, four inter-state debates, with the State universities of Utah, Kansas, Missouri, and Texas.

These inter-state debates have already become an important factor in the University life and it is safe to predict will year by year become of greater and greater significance in the educational life of the State. This report takes no account of a score of contests held under the immediate direction of the Debating, Literary, and Scribblers' Clubs now flourishing independently of Faculty supervision.

PHYSICAL CULTURE AND ATHLETICS.

It is pleasing to note progress along the lines of Physical Culture; and we are now far ahead of our equipment. One of the pressing needs of the University is a large gymnasium arranged for the use of female as well as male students. This

should be carefully planned with regard to the steady growth of the institution. It may be found best to erect two such buildings, one with dormitory connections for girls, and one in close connection with a permanent athletic field for men. Until this is done a thorough course in this subject, such as ought to be available to every student and such as the larger universities offer cannot be given. At present the work is carried on by a Director who has charge of all athletics and gymnasium work with the aid of a coach for football, two student assistants in the gymnasium, and a graduate medical attendant for women, the last three on merely nominal pay.

The gymnasium and associated athletic work is conducted with reference to making the periods recreative and are carried along on hygienic and corrective lines aiming to give grace in bearing and proficiency in games.

Until 1907 the work was entirely voluntary. November 1, 1907, began required work for all first year students in the College of Liberal Arts. This program worked out very successfully and it is hoped that arrangements may be made to extend the required work to the freshmen of other departments and to the second year students as well.

Special attention is given to the four leading sports—Football, Baseball, Basketball, and Field and Track Athletics; and candidates for these teams receive systematic instruction and training.

A cross-country team works every afternoon during the autumn season.

Tennis is very popular among the students; a greater number of courts should be provided for their use.

Intercollegiate contests are carried on with teams both within and without the State, the rivalry being keen but generally characterized by a fair and manly spirit.

The supervision of athletics is in the hands of a Board of Control, composed of three members of the Faculty and two student representatives. This Board employs the services of a Graduate Manager, who is responsible for the finances of the Students' Athletic Association.

The following are the eligibility rules which are carried out:

In order to be eligible to represent the University in an intercollegiate athletic contest, a student

(a) Must be an amateur in the ordinary acceptation of the term;

(b) Must not have taken part in intercollegiate athletics for more than three years previous to the year in which he desires to compete;

(c) Must not have taken part in intercollegiate athletics the immediately preceding year at some other institution of college grade;

(d) Must be doing such work in at least two-thirds of the required work of his College (or School) that, if it is continued to the end of the semester, he shall be entitled to his credits in that work. This must be certified by the various professors;

(e) Must have satisfied the conditions of entrance with at least thirteen entrance units;

(f) Must be registered within two weeks of the beginning of the semester in which the contest, in which he desires to compete, occurs.

RELATION TO THE HIGH SCHOOLS.

Each year there is more recognition of the continuity of High-School and College work and this particular notion will be encouraged still more in the future. Beside the High-School visitor other members of the Faculty are aiding in the High-School work, are making the acquaintance of the High-School men and are conferring with them as to courses of study. The High-School visitor with the co-operation of the High-School Committee is doing all that can be done to further raise the standards of the schools accredited with the University. For schools not yet accredited the standards were considerably raised for the present year. There are now accredited fifty-two schools and several others will probably come up to requirements very soon. In the near future it is purposed to hold a conference of High-School and University men, similar to the conference of nineteen hundred and three, to discuss problems vital in particular to the High Schools. The High-School men have shown a most hearty interest in this matter and have suggested most of the topics for discussion. There is a well-marked disposition in most of the Colorado High Schools to employ University of Colorado teachers; at present the supply does not equal the demand. The College of Education will probably add to the supply. During the present year some sixty-five Uni-

versity of Colorado graduates were placed in school positions and of these twenty-five were placed in the High Schools. As a further indication of the High-School attitude toward the University the nineteen hundred and seven High-School Day was the most largely attended of any of the meetings thus far.

BUILDINGS AND GROUNDS.

Important improvements have been made in the last two years. The Chemistry Building was completed in the early part of this biennial period, and about \$21,000.00 of the cost has been paid within the period. The "Nurses' Home" is a wooden cottage of twelve rooms, which was removed from a new addition to the University grounds and enlarged and adapted to its present use; its value now is about \$3,500.00. Several sections have been added to the sheds on the south side. Ten lots adjoining the southeast part of the campus have been added by purchase at a cost of \$10,000.00; this ground includes two brick cottages, and a wooden house which was removed and converted into the Nurses' Home. The Engineering Shops Building, completed during the last semester, is a brick structure 92x122. It contains drawing rooms, two wood shops, a machine shop, a forge shop, and a foundry; the cost was \$32,132.00. A temporary Anatomy Building has been erected east of the Sheds at a cost of \$1,300.00 to which should be added \$2,000.00 for a refrigerating plant, making a total of \$3,300.00; the plant is movable and can be placed in a new medical building. A Heating, Lighting, and Power Plant has been planned to be located east of the Shops across Regent Street on a triangle owned by the University. A temporary structure on this site—part of the foundation being permanent—is now nearly completed, and new power units have been purchased. The old plant is inadequate to do all the work for this year; when the new plant is finished this is to be abandoned and a steam pipe is to be carried from the new plant to the heating system.

A Law Building at a minimum cost of \$50,000.00 has been offered as a gift by Hon. Simon Guggenheim, and the Regents have tendered an acceptable location west of the Library; the completed building is assured before September, 1909. The Macky Auditorium, to be erected by the gift of the late Andrew J. Macky, a distinguished resident of Boulder and one of its pioneers, is already planned, and specifications are in preparation.

Probably about \$250,000.00 will be realized from the estate for the University; all this will be devoted to the Auditorium Building and its furnishings.

The improvements and repairs on buildings and the improvements on grounds are of necessity always considerable and constitute an important item of expense.

The following are some of the more important improvements on buildings: extensive changes a year ago in the Engineering Building incident to the removal of some engineering departments to the Shops; refitting recently the basement of the Engineering Building and adapting it to the needs of the Government Timber Testing Station; additions to the athletic training quarters; placing of standpipes in several buildings; adding fire escapes to the Science Building and the Hospital; finishing rooms in upper story of University Cottage; constructing Laboratory in Hospital.

We note the following improvements on grounds: extensive drains on the southeast quarter of the grounds; sidewalk fills on Regent Street; placing new electric light poles, and changing wiring to three-phase alternating; extending fence of athletic field; carrying high-pressure steam and air blast pipes from the Engineering Building to the Chemistry Building; repairing dam below the lake; extending a new six-inch water pipe across the grounds, south of the Library, and connecting at two points with the old four-inch main; planting trees on the Hospital grounds by the Botanical Department; and planting shrubbery near University Cottage.

NEEDS.

The Engineering Shops Building, the need of which was presented to the last Legislature, has been erected. By the gifts of Mr. Macky and Senator Guggenheim the Auditorium and the Law Building are provided for, and part of the addition to the grounds recommended has been made by purchase.

The need of a Heating, Lighting, and Power Plant, a Science and Museum Building, and a Medical Building remains and is much more urgent than two years ago. Besides, the Physics Department requires greatly enlarged space that can be provided only by a new building or an addition to the present Science Building. Sketches of the proposed buildings have been prepared and they will be presented to the Legislature. The attention of

the General Assembly is again called to the importance of providing for a Girls' Dormitory, a Main Building, additions to grounds and improvement of grounds, a Gymnasium, and completion of the Library.

The time has come when something definite should be done to develop research along both theoretical and practical lines in all scientific departments—Engineering, Medicine, Chemistry, Geology, Biology, including also such departments as Economics, Sociology, History, and Education. The College of Liberal Arts reports 46 subjects of research in which the departments could engage, were sufficient equipment and instruction provided, although a very limited amount of such work is now undertaken. The College of Engineering reports some 30 subjects of practical research, some of which have been undertaken, but most of which require additional facilities. The Medical School recommends a State Hygienic Laboratory in connection with the School which should prove of vast importance to the State. Most of these research subjects have a direct practical value for Colorado, and, if carried on, would altogether bring large practical returns. Reference is made to the reports of the colleges named. The Graduate School, the foundation of which has been carefully laid, should receive adequate support that our young men may find at home opportunities for genuine university work. The successful graduate schools of the country offer fellowships to able students, and some provision should be made for them here. We refer to the report of the Graduate School. Research and Graduate work are marks of the genuine university today, and some state universities are already devoting as much money to these features as the whole expenditure of the University of Colorado. Not a dollar, as yet, has been specially provided by Colorado for the development of research and the upbuilding of a Graduate School in its University. We recommend that a special fund for this purpose be provided by the coming Legislature.

The average annual expenditure of the biennial period, aside from new buildings, is \$177,461.33, which is \$24,723.43 greater than the average of the previous period. The annual income from all sources is about \$175,000.00, which is less than the average actual expense of the last two years, much less than the present rate of expenditure, and very inadequate for the growing demands of the coming two

years. In two years the attendance has increased 30 per cent., and the teaching force, the appropriations for departments, and various regular charges have been increased nearly in proportion. The next two years will see as large a growth. Moreover there is a question of salaries for professors and instructors, which, considering the high cost of living, should be seriously weighed by the Legislature and the Regents. We have the old story of increasing population, wealth, attendance at State educational institutions, and a comparatively stationary valuation of property for taxation. Unless the valuation is very materially increased the income for the University will fall far short of the urgent needs.

The \$145,713.33 credited by the Treasurer in his report, representing a special appropriation and a long unpaid emergency loan, has been used as follows: \$68,555.08 for buildings and purchase of land, \$62,274.40 to cover the loan reported October 1, 1906, and the remainder to meet a small part of the current expenses until the end of the State's fiscal year, November 30, 1908. [This report is made October 1.] The \$7,055.83, also credited in the Treasurer's Report, being the last unpaid portion of the Governor Thomas emergency loan, stands as a special account.

The two great political parties in their recent State conventions endorsed the policy of giving the University's Medical Department the privilege of conducting the last two years of its work in Denver. The Medical Bill would naturally receive the endorsement of the coming Legislature.

Mr. Andrew Carnegie has increased the fund of the "Carnegie Foundation," intended to provide retiring allowances for professors, and the Trustees will hereafter include State universities in their list. The provisions of the gift require the endorsement of the Legislature in case of each State university.

The Professor of Geology in the State University was made State Geologist by the last Legislature. His report as State Geologist will be forthcoming. We believe it will be found that much has been done with the limited appropriation granted, and that the State will get large returns by making greater use of the Geological Department of the University and increasing the small appropriation for Geological Survey and reports thereon.

GIFTS.*

Gifts during the past two years are as follows:

Class of 1906, University of Colorado, oil painting, Rocky Mountain scene, by Charles Partridge Adams.	\$ 80.00
Class of 1907, University of Colorado, engraving, Cathed- ral in France	70.00
Subscription to build veranda to Nurses' Cottage.....	300.00

Civil Engineering.

Alpha Portland Cement Co., New York City, one bbl. Portland cement	\$ 3.00
Atlas Portland Cement Co., St. Louis, Mo., 4 bbls. Port- land cement	10.00
Illinois Steel Co., Chicago, Ill., 1 bbl. Portland cement...	3.00
Iola Portland Cement Co., Iola, Kan., 1 bbl. Portland cement	3.00
Neptune Meter Co., New York City, trident water meter.	5.00
Pittsburg Meter Co., East Pittsburg, Pa., water meter...	5.00
Portland Cement Co., Portland, Colo., 4 bbls. Portland cement	10.00
Sandusky Portland Cement Co., Sandusky, Ohio, 1 bbl. Portland cement	3.00

Electrical Engineering.

Arc Lamp	\$ 5.00
Columbia Incandescent Lamp Co., St. Louis, Mo., sample incandescent lamp board	10.00
Garton-Daniels Co., Keokuk, Iowa, Garton lightning ar- rester	2.50
Hall Signal Co., Garwood, N. J., track signal relays and resistances for same	35.00
Hendrie & Bolthoff Mfg. & Supply Co., Denver, Wagner indicating wattmeter	100.00
Northern Colorado Power Co., Denver, high tension in- sulators	3.00
Recording wattmeter	15.00

*The proposed Law Building, gift of Hon. Simon Gugenheim, and the proposed Auditorium, gift of Hon. Andrew J. Macky, are not noted in this list.

Mechanical Engineering.

Blue prints	\$ 25.00
Colburn & Co., Denver, universal couplings.....	25.00

Medicine.

Bethel H. Jackson, E. Orange, N. J., skiascope.....	12.00
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Systematic Zoology.

E. Bethel, Denver, various specimens of insects collected in Colorado	
Dr. N. L. Britton, New York City, leaves and fruits of <i>Pyrus</i> and <i>Malus</i>	
O. Heidemann, Washington, D. C., specimens of <i>Cercopidæ</i>	
Mrs. J. A. McNary, El Paso, Texas, Mantis from Texas..	
S. A. Rohwer, Boulder, numerous specimens of insects collected in Colorado	
Frank Springer, Las Vegas, N. M., larvæ and pupæ of <i>Hemileuca</i> , from New Mexico.....	
Mrs. E. B. Williamson, Blufton, Ind., specimens of dragon flies	
Value of above gifts.....	25.00

Geology.

Philip Argall, Selby, Calif., mineral and rock specimens..\$	40.00
F. F. Castello, Colorado Springs, 100 pounds Telluride ore, Mary McKinney Mine, Cripple Creek.....	5.00
A. E. Chase, Boulder, section pipe with calcium carbonate deposits from mine water, Georgetown.....	2.00
C. A. Chase, Denver, 100 pounds concentrates, Liberty Bell Mine	5.00
R. D. Crawford, Boulder, set of rock specimens, Sugar Loaf District	15.00
Paul Dean, Glenwood Springs, three specimens celestite, Castle Rock	2.00
Arthur L. Dierstein, Denver, one vivianite specimen, Leadville	2.00
G. W. Duncan, Cripple Creek, two specimens Telluride ore, Cripple Creek	1.00
John Flynn, Aspen, ores from Rico.....	2.00

R. D. George, Boulder, miscellaneous collection from Iowa, Nebraska, Illinois, New Mexico, and Nevada...	\$ 50.00
J. A. Hamilton, Denver, lithographic stone and fossil fish specimens	8.00
Dr. William P. Harlow, Boulder, gold and silver ores, Oregon	25.00
W. A. Kearns, Silverton, one specimen Freibergite.....	2.00
John Knight, Denver, 25 pounds hubnerite.....	2.00
C. F. Lake, Boulder, wolframite and gold and silver specimens, 150 pounds crude tungstun ore, Nederland....	46.00
George A. Pughe, Longmont, wolframite specimens....	5.00
Roy J. Randall, Broomfield, two cuprite specimens, Emma Mine, Grant Co., N. M.....	1.00
Harry E. Sovereign, Denver, minerals, Gilpin and Clear Creek counties.....	2.00
C. H. Sternberg, Lawrence, Kans., fossil leaves, etc.....	8.00
Frederick T. Smith, Leadville, specimens of vanadium ore	2.00
Hugh Thatcher, Denver, one specimen wire silver, one specimen argentiferous galena, three specimens calaverite, one specimen roasted gold ore, one specimen silver ore, Nevada ores, gold and silver ores, Goldfield and Tonopah.....	27.00
Harold D. Thompson, Cripple Creek, gold and silver tellurides, Cripple Creek	22.00
Dr. E. B. Trovillion, Boulder, one specimen galena chalcopyrite, Jamestown.....	1.00
B. W. Vallatt, Denver, complete set ores and associated rocks, Sunrise Mine, Wyoming.....	25.00
F. Zugelder, Gunnison, 40 specimens marble building stone, etc.....	15.00

Museum.

Dr. H. W. Allen, Boulder, Colo., series of white-tail deer antlers	\$ 8.00
William S. Bellman, Boulder, Colo., weasel and duck...	5.00
E. Bethel, Denver, Colo., Colorado mollusks.....	10.00
Dr. Calhoun, Clemson College, S. C., fossil and recent shells	10.00

Prof. Theodore D. A. Cockerell, Boulder, Colo., fossil and recent shells.....	\$ 4.00
Hon. James Cowie, Boulder, Colo., sabine gull.....	2.00
Albert Dakin, Longmont, Colo., Colorado mollusks.....	15.00
H. O. Dunning, Boulder, Colo., badger.....	3.00
Ray Edson, Boulder, Colo., Brazil nut capsule.....	2.00
William Fleming, Boulder, Colo., mollusks.....	3.00
Junius Henderson, Boulder, Colo., fossil and recent shells	10.00
Prof. Francis Ramaley, Boulder, Colo., mounted herbarium specimens of Minnesota plants.....	50.00
J. W. Richardson, Boulder, Colo., fossil and recent shells from California.....	4.00
United States Agricultural Department, Washington, D. C., collection of fibers.....	15.00
Hon. Charles B. Ward, Boulder, Colo., reptile skin.....	5.00
Birds and mammals.....	10.00
Colorado mollusks.....	20.00
Fossils	15.00
Miscellaneous insects, plant specimens, seeds, etc., from various persons.....	10.00
Miscellaneous fossils and mollusks from various persons	15.00
Total	\$1,280.50

Library.

Library gifts; also reported on page 76.

	Books.	Pamp.	Maps.
Baker, President James H.....	58	233	
Canadian Geological Survey	10	88	
Carnegie Institution	37	42	
Cockerell, Prof. T. D. A.....	20	38	
Colorado (State Reports, etc.)....	37	76	
Cornell, Herbert	2	102	
Duane, Dr. Wm.....	120	463	
Ekeley, Prof. John B.....	5	20	
Georgia Geological Survey.....	15		

Books. Pamph. Maps.

Illinois Laboratory of Natural History	2	27	
Lester, Prof. O. C.	6		
Library of Congress	14	4	
Maryland Geological Survey.....	3		
Minnesota Public Library (Bound Per.)	53		
Missouri Geological Survey.....	5	4	
Murfree, Mrs. Wm. L.....	98		
Ohio Geological Survey.....	10		
Phillips, Prof. John B.....	13		
Ramaley, Prof. Francis.....		6	
Smithsonian Institution.....	10	72	
United States (various depts.)....	303	1,426	11
University of Chicago.....	14	53	
University of Colorado—Theses...		218	
University of Michigan.....	1	31	
Wisconsin Geological Survey.....	10	4	
Yale University	9	2	
College Catalogs		1,002	
Miscellaneous	413	1,022	
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Total library	1,268	4,933	11 \$1,700.00
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Total gifts			\$2,980.50

Gifts previous to 1896.....	\$27,207.00
Gifts, 1896-1898.....	11,556.00
Gifts, 1898-1900.....	7,042.00
Gifts, 1900-1902.....	756.00
Gifts, 1902-1904.....	1,949.00
Gifts, 1904-1906.....	7,123.75
Gifts, 1906-1908.....	2,980.50
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Total	\$58,614.25

REPORTS SUBMITTED.

We submit herewith the Pay-Roll of the University, Secretary's Fee Report, Report on Permanent Fund, Report on University Lands, Report of State Auditor, Treasurer's Report, Secretary's Report, Librarian's Report, Inventory of Property.

Respectfully submitted,

OSCAR J. PFEIFFER,
WILLIAM J. KING,
HAROLD D. THOMPSON,
THOMAS D. BAIRD,
CHARLES R. DUDLEY,
JOSEPH C. BELL,

Board of Regents.

JAMES H. BAKER,

President.

EDWIN J. INGRAM,
Secretary.

APPENDIX.

PAY-ROLL OF THE STATE UNIVERSITY (Annual).

Administration.

James H. Baker, M. A., LL.D., President.....	\$ 5,000.00
Edwin J. Ingram, B. A., LL. B., Secretary Board of Regents	900.00
Fred E. Hagen, B. A., Secretary.....	1,300.00
Terry V. Ritchie, Assistant Secretary.....	360.00
Katharine Kalene, Stenographer.....	550.00
Frances B. Jones, Stenographer.....	480.00
Bovia McClain, Employment Bureau.....	300.00
Ida R. Carr, Students Aid.....	200.00
Additional clerical help in Registrar's office.....	150.00
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	\$ 9,240.00

College of Liberal Arts.

Fred B. R. Hellems, Ph. D., Dean, Professor of Latin...	\$ 2,600.00
Mary Rippon, Professor of the German Language and Literature	2,000.00
J. Raymond Brackett, Ph. D., Secretary of the Graduate Faculty; Professor of Comparative and English Literature	2,500.00
Ira M. DeLong, M. A., Professor of Mathematics.....	2,500.00
Charles C. Ayer, Ph. D., Professor of Romance Languages	2,500.00
George Norlin, Ph. D., Professor of Greek.....	2,500.00
Francis Ramaley, Ph. D., Professor of Biology.....	2,500.00
Melanchthon F. Libby, Ph. D., Professor of Philosophy..	2,200.00
John B. Phillips, Ph. D., Secretary of the College of Commerce; Professor of Economics and Sociology...	2,200.00
Clyde L. King, M. A., Acting Professor of Economics and Sociology.	
John B. Ekeley, Ph. D., Professor of Chemistry.....	2,500.00
Russell D. George, M. A., Professor of Geology.....	2,500.00

George C. Taylor, Ph. D., Professor of English.....	\$ 1,800.00
Theodore D. A. Cockerell, Professor of Systematic Zoology	500.00
George M. Chadwick, Professor of Music.....	1,200.00
James F. Willard, Ph. D., Professor of History.....	1,700.00
Vivian A. C. Henmon, Ph. D., Professor of Psychology and Education	1,800.00
Oliver C. Lester, Ph. D., Professor of Physics.....	2,100.00
Frank E. Thompson, B. A., Secretary of the College of Education; Professor of Education.....	2,100.00
Milo G. Derham, Ph. D., Assistant Professor of Latin..	1,400.00
Ralph D. Crawford, M. A., Assistant Professor of Geology	1,200.00
Martha G. McCaulley, M. A., Dean of Women.....	1,200.00
Charles E. Chadsey, Ph. D., Lecturer on Educational Problems.	
Junius Henderson, B. A., Curator of Museum.....	250.00
Fordyce P. Cleaves, M. A., Instructor in Oratory.....	550.00
Charles B. Dyke, M. A., Instructor in Education.....	450.00
Henry A. Hartman, Ph. D., Instructor in Education....	200.00
Arthur L. Tatum, M. S., Instructor in Chemistry.....	800.00
Samuel C. Black, M. A., D. D., Instructor in Hebrew....	200.00
Ruby L. Carstens, M. A., Instructor in Mathematics....	800.00
Margaret S. Carhart, M. A., Instructor in English.....	800.00
Joseph L. Kingsbury, B. A., Instructor in History.....	800.00
Mary K. Murphy, B. A., Instructor in German.....	600.00
Whitford H. Shelton, Ph. B., Instructor in Romance Languages	800.00
Wilfred W. Robbins, B. A., Instructor in Biology.....	800.00
Harry A. Curtis, B. S., (C. E.), Instructor in Chemistry.	800.00
Adolph G. Pierrot, Ph. B., Instructor in English.....	800.00
William R. Brackett, B. A., Instructor in Physics.....	800.00
Carl L. Rahn, Ph. B., Instructor in Education.....	800.00
Louisa Lehrritter, Assistant in Education.....	800.00
Cleophile Bell, B. A., Assistant in English Literature...	200.00
John G. Todd, Assistant in Romance Languages.....	50.00
Edith M. Allison, B. A., Assistant in Biology.....	400.00
Jennie Robinson, Assistant in Biology.....	200.00
Fred D. Anderson, Assistant in Philosophy.....	200.00
Leroy Davison, B. A., Assistant in Economics and So- ciology	200.00

Earl B. Millard, Stock Room Assistant.....	\$ 200.00
Alfred H. Allen, Assistant in Chemistry.....	200.00
Philip G. Worcester, Assistant in Geology.....	200.00
Harry Aurand, Assistant in Geology.....	100.00
Roy M. Butters, Assistant in Geology.....	100.00
Easley S. Jones, B. A., Assistant in English.....	400.00
Timothy O. Holcomb, B. A., Assistant in English.....	200.00
B. Inez Stearns, Assistant in English.....	100.00
Ward H. Foster, B. A., Assistant in Psychology.....	100.00
Whitney C. Huntington, Assistant in Physics.....	400.00
Siebelt L. Simmering, Assistant in Physics.....	200.00
Ada Haldeman, Dean's Secretary.....	200.00
Other clerical service in Dean's office.....	350.00
Edith Rawlins, Clerk College of Education.....	180.00
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	\$56,730.00

Summer School.

Eighteen instructors	\$ 2,480.00
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College of Engineering.

Milo S. Ketchum, C. E., Dean; Professor of Civil Engineering	\$ 2,600.00
Herbert S. Evans, E. E., Professor of Electrical Engineering	2,000.00
John A. Hunter, M. E., Professor of Mechanical Engineering	1,800.00
Saul Epsteen, Ph. D., Assistant Professor of Eng. Math.	1,200.00
Jacob H. Wallace, M. E., Assistant Professor of Engineering Drawing	1,200.00
David R. Jenkins, E. E., Instructor in Electrical Engineering	1,000.00
Clement C. Williams, B. S. (C. E.), Instructor in Civil Engineering	1,000.00
Alfred P. Poorman, B. S. (C. E.), Instructor in Civil Engineering	1,000.00
George L. Sullivan, B. S. (M. E.), Instructor in Mechanical Engineering	800.00
Axel E. Berggren, B. S. (M. E.), Instructor in Mechanical Engineering	800.00
William Black, Jr., B. S., Instructor in Mechanical Engineering	800.00

James S. Mikesh, B. A., Instructor in Engineering Mathematics	\$ 800.00
Harry C. Gardner, B. S. (C. E.), Assistant in Civil Engineering	400.00
Harold L. Ireland, B. S. (E. E.), Assistant in Electrical Engineering	400.00
George I. Gay, Assistant in Engineering Mathematics...	200.00
David M. Dodds, B. S. (C. E.), Assistant in Engineering Drawing	400.00
S. Elizabeth Ellmaker, Dean's Secretary.....	200.00
Additional clerical work.....	150.00
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	\$16,750.00

School of Medicine.

William P. Harlow, B. A., M. D., Dean; Professor of Medical Diagnosis	\$ 750.00
Luman M. Giffin, M. D., Professor of Surgery.....	200.00
John Chase, B. A., M. D., Professor of Ophthalmology and Otology	320.00
Thomas E. Taylor, B. A., M. D., Professor of Obstetrics.	320.00
William B. Craig, M. D., Professor of Surgery.	
E. Barber Queal, M. D., Professor of Physiology.....	200.00
George H. Cattermole, M. D., Professor of Medicine (Pediatrics)	100.00
Frank E. Waxham, M. D., Professor of Rhinology and Laryngology	160.00
Francis Ramalay, Ph. D., Professor of Histology and Embryology (salary noted elsewhere).	
Charles Fisher Andrew, M. D., Professor of Materia Medica and Therapeutics.....	100.00
Charles S. Elder, M. D., Professor of Surgery (Gynecology).	
Newton Wiest, M. D., Professor of Dermatology.....	320.00
John B. Ekeley, Ph. D., Professor of Chemistry (salary noted elsewhere).	
James R. Arneill, B. A., M. D., Professor of Medicine (Clinical Medicine)	320.00
Richard W. Corwin, M. D., LL. D., Professor of Surgery.	45.00
Charles B. Lyman, M. D., Professor of Surgery.....	320.00

John M. Foster, M. D., Professor of Otology.....	\$ 160.00
Edward Jackson, M. A., M. D., Professor of Ophthalmology	160.00
Carroll E. Edson, M. A., M. D., Professor of Medicine (Theory and Practice).....	320.00
Edward F. Dean, M. D., Professor of Anatomy.....	640.00
Ross C. Whitman, B. A., M. D., Secretary; Professor of Pathology.....	1,800.00
Arthur L. Kennedy, M. D., Assistant Professor of Medicine	320.00
Oscar M. Gilbert, M. D., Assistant Professor of Medicine	100.00
Alvin R. Peebles, M. D., Assistant Professor of Medicine	800.00
Clough T. Burnett, M. D., Assistant Professor of Bacteriology	800.00
Vivian A. C. Henmon, Ph. D., Lecturer on Psychology (salary noted elsewhere).	
Eugene H. Robertson, M. D., Lecturer on Electro-Therapeutics	200.00
George E. Neuhaus, M. D., Lecturer on Neurology and Psychiatry	320.00
Edward Delehanty, M. D., Lecturer on Neurology.....	320.00
William W. Grant, M. D., Lecturer on Surgery.....	320.00
Willard J. White, M. A., M. D., Instructor in Hygiene..	50.00
Jacob Campbell, M. D., Instructor in Minor Surgery...	150.00
Edward B. Trovillion, M. D., Instructor in Anatomy....	150.00
Walter W. Reed, M. D., Instructor in Obstetrics.....	100.00
William A. Jolley, M. D., Instructor in Pharmacology...	75.00
Wilfred W. Robbins, B. A., Instructor in Histology and Embryology (salary noted elsewhere).	
John Andrew, B. A., M. D., Instructor in Anatomy.....	150.00
Frank R. Spencer, B. A., M. D., Instructor in Rhinology and Laryngology	50.00
Philip A. Davis, M. D., Assistant in Obstetrics.....	50.00
Clay E. Giffin, B. A., M. D., Assistant in Surgery.....	50.00
James A. Philpott, Assistant in Pathology.....	50.00
Ammy B. Edgar, Assistant in Anatomy.....	50.00

\$10,340.00

University Hospital.

Jean McIntosh, Matron.....	\$ 720.00
Twelve Nurses	1,152.00
Hospital employes, as cook, laundress, maids, porter...	1,920.00

\$ 3,792.00

School of Law.

Appropriation for traveling expenses of professors and lecturers whose salaries are not indicated.....	\$ 585.00
John D. Fleming, B. A., LL. B., Déan; Professor of Law and Associate Judge of Practice Court.....	2,500.00
Moses Hallett, LL. D., Déan and Professor of American Constitutional Law, <i>Emeritus</i> .	
John Campbell, M. A., LL. B., Déan <i>Emeritus</i> ; Professor of Law of Private and Municipal Corporations.	
Albert A. Reed, LL B., Professor of Law.....	1,200.00
William H. Bryant, B. S., LL. B., Professor of Law.	
Edwin Van Cise, Professor of Law.	
William H. Pease, B. A., LL. B., Professor of Law....	1,900.00
James F. Willard, Ph. D., Professor of American and English Constitutional and Political History (salary noted elsewhere).	
Fred G. Folsom, B. A., LL. B., Instructor in Law and Judge of Practice Court.....	1,000.00
Joseph L. Kingsbury, B. A., Instructor in History (salary noted elsewhere).	
Hugh Butler, Lecturer on Common Law Pleading.	
Luther M. Goddard, LL. B., Lecturer on Law of Patents, Copyrights and Trademarks.	
Robert S. Morrison, Lecturer on Law of Mines and Mining.	
Charles S. Thomas, LL. B., Lecturer on Law of Evidence	
Henry T. Rogers, M. A., Lecturer on Law of Corporations.	
Lucius M. Cuthbert, M. A., LL. B., Lecturer on Roman Law.	
John A. Riner, LL. B., Lecturer on International Law.	
Platt Rogers, LL. B., Lecturer on Law of Irrigation.	
Thomas H. Hardcastle, B. A., LL. B., Lecturer on Equity Pleading and Practice.	

Ralph Talbot, B. A., Lecturer on Criminal Law and Procedure.

Charles D. Hayt, Lecturer on Law of Taxation.

Cæsar A. Roberts, M. A., Lecturer on Colorado Civil Code.

Willard J. White, M. A., M. D., Lecturer on Medical Jurisprudence.

Ernest L. Williams, LL. B., Lecturer on Conveyancing and Appellate Procedure.

James W. McCreery, Lecturer on Law of Irrigation and Water Rights.

Randolph Ballinger, Law Librarian.....	\$ 150.00
A. Elmer Stirrett, Assistant Librarian.....	40.00
Frederic L. Tilton, Stenographer.....	40.00
Clerk of the Practice Court.....	50.00
Sheriff of the Practice Court.	

\$ 7,465.00

Library and Physical Training.

Alfred E. Whitaker, M. A., Librarian (12 months).....	\$ 1,700.00
Walter L. Barnes, Ph. B., Assistant Librarian (12 mos.)	1,100.00
Faith E. Foster, Assistant Librarian (12 months).....	600.00
C. Belmont Preston, Assistant in Library (12 months)..<	300.00
Carl A. McLauthlin, Assistant in Library (9 months)..<	150.00
Granville B. Warner, Assistant in Library (3 months)..<	150.00
John D. Lobb, Assistant in Library (3 months).....	90.00
Frank R. Castleman, B. S., Director of Physical Training and Athletics	1,500.00
Louis A. Reilly, Assistant in Gymnasium.....	120.00
_____, Assistant in Gymnasium.....	100.00
Dr. Margaret L. Johnson, Physical Examiner for Women	50.00

\$ 5,860.00

Other Employees.

Joseph Klemme, Steward.....	\$ 780.00
William W. Parce, Landscape Architect.....	200.00
George R. Moore, Carpenter.....	900.00
John Gumeson, Carpenter.....	960.00
Dan E. Hayward, Employee on Grounds.....	600.00
E. E. Barrows, Night Watchman.....	600.00

Other employees for regular care of buildings and grounds	\$ 3,850.00
Charles E. Cummings, Engineer.....	1,200.00
Five Firemen	2,160.00
———, Janitor Main Building.....	480.00
———, and Assistant, Janitors Science, Engineering, Gymnasium, Library, and Old Anatomy Buildings	675.00
———, and Assistant, Janitors Shops, Chemistry Building, Men's Dormitory, and Cottage No. 2.....	675.00
———, Janitor Medical and New Anatomy Buildings	180.00
	<hr/>
	\$13,260.00

Summary.

Administration	\$ 9,240.00
College of Liberal Arts.....	56,730.00
Summer School	2,480.00
College of Engineering.....	16,750.00
School of Medicine.....	10,340.00
University Hospital	3,792.00
School of Law.....	7,465.00
Library and Physical Training.....	5,860.00
Other Employees	13,260.00
	<hr/>
	\$125,917.00

SECRETARY'S FEE REPORT.

From October 1, 1906, to October 1, 1908.

Receipts.

Cash on hand, last report.....	\$ 80.52
Notes on hand, last report.....	201.25
Cash in hands H. S. Visitor.....	100.00
Tuitions and fees from College of Liberal Arts and College of Engineering.....	21,575.00
Tuitions and fees from Law School.....	7,710.35
Tuitions and fees from Medical School.....	5,253.00
Hospital receipts	18,493.13
Chemistry fees	3,472.95
Room rent	2,244.80
Deposits	896.75

Summer School	\$ 3,397.00
Miscellaneous	856.66
	<hr/>
	\$64,281.41

Deposits with Treasurer, Etc.

Deposited with William H. Allison, Treasurer.....	\$63,995.77
Cash on hand H. S. Visitor.....	100.00
Notes on hand for tuition.....	178.00
Cash on hand	7.64
	<hr/>
	\$64,281.41

Respectfully submitted,

EDWIN J. INGRAM,
Secretary Board of Regents.

REPORT ON PERMANENT FUND.

Board of Regents, State University, Boulder, Colorado:

GENTLEMEN—In compliance with your request of October 22, we herewith send statement of the University Permanent Fund, October 1, 1908:

University Permanent Fund.....	\$48,904.45
Invested	39,356.66
	<hr/>
Available Cash	\$ 9,547.79
Unavailable warrants, years 1889 and 1894.....	\$27,763.87
Available warrants, year 1908.....	11,592.79
	<hr/>
	\$39,356.66
Total available fund.....	\$21,140.58
Total unavailable fund.....	27,763.87
	<hr/>
Total	\$48,904.45

Very truly yours,

ALFRED E. BENT,
State Treasurer.

REPORT ON UNIVERSITY LANDS.

Status of University Lands on October 1, 1908.

	Owned.	Leased.	Rental.
Conejos County	80	80	\$ 10.00
Jefferson County	2,760	440	35.60
Logan County	2,960.65	2,587.31	692.45
Washington County	1,440	720	82.00
	<hr/> 7,240.65	<hr/> 3,827.31	<hr/> \$820.05

Signed,

M. A. CAREY,

Chief Clerk, State Board of Land Commissioners.

Note.—Certain University lands are now included in government reserves, and the Regents are endeavoring to secure an exchange of other lands.

REPORT OF STATE AUDITOR.**University Tax Fund.**

By Balance, October 1, 1906.....	\$ 5,863.72
By receipts from levy.....	285,278.69
To amount paid University Treasurer...*	\$289,504.44
To balance, September 30, 1908.....	1,637.97
	<hr/>
	\$291,142.41
	<hr/>
	\$291,142.41

University Income Fund.

By Balance, October 1, 1906.....	\$ 373.60
By Receipts	2,779.52
To amount paid University Treasurer....\$ *	\$2,100.89
To Refund	35.00
To Balance, September 30, 1908.....	1,017.23
	<hr/>
	\$ 3,153.12
	<hr/>
	\$ 3,153.12

Special Appropriation.

By Appropriation S. B. No. 110, November 11, 1907	\$100,000.00
---	--------------

To Warrants paid University Treasurer, November 11, 1907.....	\$ 50,000.00	
To Warrants paid University Treasurer, April 15, 1908.....	50,000.00	
	<hr/>	<hr/>
	*\$100,000.00	\$100,000.00

Deficiency Indebtedness.

Certificates of Indebtedness.

	Date of payment.	Interest.	Total.
No. 1.....	Jan. 31, 1907	\$ 636.67	\$ 5,636.67
No. 2.....	Jan. 31, 1907	636.67	5,636.67
No. 3.....	Jan. 31, 1907	636.67	5,636.67
No. 4.....	Jan. 31, 1907	636.67	5,636.67
No. 5.....	May 31, 1907	737.50	5,737.50
No. 6.....	May 31, 1907	737.50	5,737.50
No. 7.....	Oct. 15, 1907	845.83	5,845.83
No. 8.....	Oct. 15, 1907	422.91	2,922.91
No. 9.....	Oct. 15, 1907	422.91	2,922.91
			<hr/>
	Total		*\$45,713.33
	Jan. 2, 1907	\$2,055.83	*7,055.83
			<hr/>
			\$52,769.16

*Note.—Here follows a comparison of the Auditor's payments and the Treasurer's receipts.

Auditor.	Treasurer.
\$289,504.44.....	\$283,650.72 (A)
2,100.89.....	1,727.29 (B)
100,000.00.....	100,000.00
45,713.33.....	45,713.33
7,055.83.....	7,055.83

(A)

Item credited by Treasurer in previous biennial report	\$ 5,853.72
	283,650.72
	<hr/>
	\$289,504.44

(B)

Item credited by Treasurer in previous biennial report	\$ 373.60
	1,727.29
	<hr/>
	\$ 2,100.89

TREASURER'S REPORT.

From October 1, 1906, to October 1, 1908.

Receipts.

Cash on hand October 1, 1906.....	\$ 13,921.29
State Treas. General Fund, 2-5 mill.....	283,650.72
State Treas. Special Fund	100,000.00
State Treas. Emergency Fund, Peabody Administration.	45,713.32
State Treas. Emergency Fund, Thomas Administration.	7,055.83
State Treas. Land Income (interest and rent).....	1,727.29
Interest on Investments (three special Univ. funds)..	272.81
Receipts from Secretary Board of Regents.....	63,995.77
Due from E. J. Temple	200.00
	<hr/>
	\$516,537.04

Disbursements.

Warrants paid from October 1, 1906, to October 1, 1908.	\$425,912.27
Interest warrants of previous period paid, representing difference between debt at date of last report and debt October 1, 1908.....	62,274.40
Cash on hand, General Account	15,285.52
Special Account	5,000.00
W. H. Allison, Custodian.....	7,298.91
Philo Sherman Bennett Fund.....	429.73
Balance Guggenheim Fund.....	36.21
Women's Fund, Special.....	25.00
Men's Fund, Special.....	25.00
Engineering Dep't., Special.....	50.00
Cash in the hands of E. J. Temple, former Secretary of Board of Regents	200.00
	<hr/>
	\$516,537.04

WILLIAM H. ALLISON,
Treasurer.

SECRETARY'S REPORT.

From October 1, 1906, to October 1, 1908.

Warrants issued in payment of expenses of the several departments of the University, during the biennial period, October 1, 1906, to October 1, 1908:

General Administration—Regents' service and mileage, President's and Secretary's salary, salaries of Registrar and his assistants, and all expenses of Registrar's office.....	\$ 23,657.36
College of Liberal Arts—Instruction and expenses....	93,860.93
Biology—Books, apparatus, supplies	1,953.76
Chemistry—Books, apparatus, supplies.....	4,782.48
Economics—Books, supplies	233.55
Education—Books, supplies	261.15
English—Books, supplies	258.70
Geology—Books, apparatus, supplies.....	4,916.79
German—Books, supplies	137.41
Greek—Books, supplies	334.14
History—Books, supplies	438.55
Latin—Books, supplies	275.23
Literature—Books, apparatus, supplies.....	819.96
Mathematics—Books, apparatus, supplies	408.72
Museum—Books, apparatus, supplies.....	1,259.31
Music—Books, apparatus, supplies.....	146.93
Philosophy—Books, supplies.....	156.12
Physics—Books, apparatus, supplies	1,443.34
Psychology—Books, apparatus, supplies.....	583.91
Romance Languages—Books	167.64
Systematic Zoology—Books, apparatus, supplies.....	536.17
College of Engineering—Instruction and expense.....	23,391.19
Civil Engineering—Books, apparatus, supplies.....	2,669.52
Electrical Engineering—Books, apparatus, supplies...	2,101.36
Mechanical Engineering—Books, apparatus, supplies.	2,213.35
Engineering Mathematics—Books, apparatus, supplies.	127.78
General Engineering Drawing—Books, apparatus, sup- plies	494.13
Shops—Machinery, instruments, supplies.....	4,684.73

School of Medicine—Instruction, apparatus, supplies, hospital, dispensary, nurses' cottage, and other expenses (largely reimbursed by medical tuitions and hospital receipts).....	\$ 45,297.29
School of Law—Instruction, library, and other expenses (partly reimbursed by tuitions).....	13,634.86
Summer School—Instruction and expenses (largely reimbursed by tuitions).....	5,422.12
Preparatory School—Instruction and expenses	6,913.04
Library—Services, books, periodicals, binding, and supplies	12,041.67
Physical Training—Salaries for Physical Training, apparatus, and expense	2,559.84
Buildings and Grounds—	
Salaries (janitors, heating and lighting service, and care of grounds).....	\$21,940.98
Repairs	7,515.57
Insurance	2,118.63
Water rent	752.50
Fuel	10,814.26
Horses	521.02
Unclassified	965.86
	44,628.82
Buildings and Grounds—	
New Buildings (including \$10,000.00 for land)	\$68,555.08
Improvements on Buildings.....	5,077.40
Improvements on Grounds.....	4,172.94
	77,805.42
Furniture and Supplies	8,114.75
Printing	8,632.33
Stationery and Postage.....	2,649.41
High School Visitation, lectures by faculty members, etc.	2,519.45
Advertising	949.67
Refunds	1,932.51
General Unclassified Account (interest, \$9,697.94; unclassified, \$8,364.42).....	18,062.36
Total for Biennial Period	<u>\$423,477.75</u>

Warrants issued not paid by October 1, 1906.....	\$ 5,487.65
Warrants issued not paid by October 1, 1908.....	3,053.13
	<hr/>
	\$ 2,434.52
Warrants issued from October 1, 1906, to October 1,	
1908	\$423,477.75
	2,434.52
	<hr/>
Sum paid by Treasurer.....	\$425,912.27

Total Expenditure for Biennial Period.....	\$423,477.75
On New Buildings (including \$10,000.00 for land)....	68,555.08

For Running Expenses (including usual necessary	
improvements and repairs).....	354,922.67
Average Annual Expenditure, 1907, 1908.....	177,461.33

Respectfully submitted,

EDWIN J. INGRAM,
Secretary.

LIBRARIAN'S REPORT.

To the President and Board of Regents, University of Colorado:

GENTLEMEN—I have the honor to present herewith my report on the Library, covering the period from October 1, 1906, to October 1, 1908.

Additions.

The total number of volumes accessioned and placed in the library during the two years is 5,737, derived from various sources, as follows:

Gifts (public documents).....	267
Gifts (miscellaneous)	1,334

Total gifts accessioned	1,601
By binding	1,035
By purchase	3,101

Total accessions5,737

Donations.

Gifts have been received, entered, and acknowledged as follows:

Books	1,268
Miscellaneous—College catalogs, pamphlets, etc.....	4,933
Maps	11
	<hr/>
	6,212

Note—Donations are shown in detail on p. 58.

Binding.

Periodicals (completed volumes).....	1,220
Books issued in paper	815
Newspapers	26
Volumes rebound	425
	<hr/>
Total	2,486

Summary.

Number of volumes reported October 1, 1906.....	38,555
Additions—	
By gift	1,601
By binding	1,035
By purchase	3,101
	<hr/>
	44,292

Deductions—

Cancelled (lost and worn out).....	8	
Less returned and found	5	3
	<hr/>	

Total number of volumes in library Oct. 1, 1908.....44,289

Respectfully yours,

ALFRED E. WHITAKER,

Librarian.

INVENTORY OF UNIVERSITY PROPERTY.

The following estimates, taken from inventories recently made, are presented as fair approximations:

Grounds.

Campus, sixty-three acres (estimated present value
unimproved)\$126,000.00

Improvements, as fences, grading, roads, walks, pipes, drains, trees, lake, bridges, athletic field.....	\$ 34,000.00
	<hr/>
	\$160,000.00

Buildings.

(Approximate cost of each.)

Main Building	\$ 40,000.00
Library (not including extension of heating pipes in ground)	75,500.00
Gymnasium	6,000.00
University Cottage	8,000.00
Cottage One	6,000.00
Cottage Two	4,000.00
Woodbury Hall	25,000.00
Two Brick Houses (on new purchase).....	2,500.00
Hale Science Building	50,000.00
Chemistry Building	43,000.00
Class-Room Building (Old Anatomy).....	3,000.00
Engineering Building	50,000.00
Engineering Shops Building	32,500.00

Heating, Lighting, and Power Plant—

Building (temporary)	\$3,000.00	
Equipment (new)	6,600.00	
Equipment (old).....	5,459.60	
Steam and air mains	9,279.00	
Electrical construction.....	4,615.06	28,953.66
	<hr/>	
Medical Building		9,500.00
Anatomy Building (new, with refrigerator).....		3,300.00
Hospital (furnished)		15,000.00
Nurses' Home		3,500.00
Observatory		200.00
Ice House		200.00
Stable and Sheds		1,700.00
		<hr/>
		\$407,853.66

Furniture, Implements.

Room furniture, as chairs, settees, desks, tables, moveable cases, pictures, office furniture, hospital and dormitory and dining hall equipment, shades, janitor's supplies, gymnasium apparatus (value).....	\$30,117.90
Team, implements, tools, carpenter's supplies (value).	2,957.30
	<hr/>
	\$33,075.20

Library.

Library (value)	\$65,000.00
-----------------------	-------------

Apparatus, Etc.**College of Liberal Arts—**

Biology	\$ 3,616.70
Chemistry	8,608.55
Economics	170.00
Education	539.50
Geology	9,237.00
German	55.00
Greek	366.00
Latin	15.00
Literature	836.15
Mathematics	960.50
Music	287.60
Physics	9,376.30
Psychology	1,441.80
Romance Languages	10.00

College of Engineering—

Civil Engineering	11,552.55
Electrical Engineering	9,179.89
Mechanical Engineering	3,414.16
Shops	10,026.00
General Engineering Drawing.....	701.60

School of Medicine—

Medical and Anatomy	5,179.54
Hospital	564.30
Hospital Clinical Laboratory.....	603.15
Dispensary	147.17

School of Law—

Inventory	\$ 452.00
-----------------	-----------

\$77,340.46

Collections.

Art	\$ 1,899.00
-----------	-------------

Biological	6,196.50
------------------	----------

Geological and Mineralogical.....	5,095.00
-----------------------------------	----------

\$13,190.50

Summary.

Grounds	\$160,000.00
---------------	--------------

Buildings	407,853.66
-----------------	------------

Furniture, Implements	33,075.20
-----------------------------	-----------

Library	65,000.00
---------------	-----------

Apparatus, etc.	77,340.46
----------------------	-----------

Collections	13,190.50
-------------------	-----------

\$756,459.82

W. F. ROBINSON PTG. CO.
DENVER

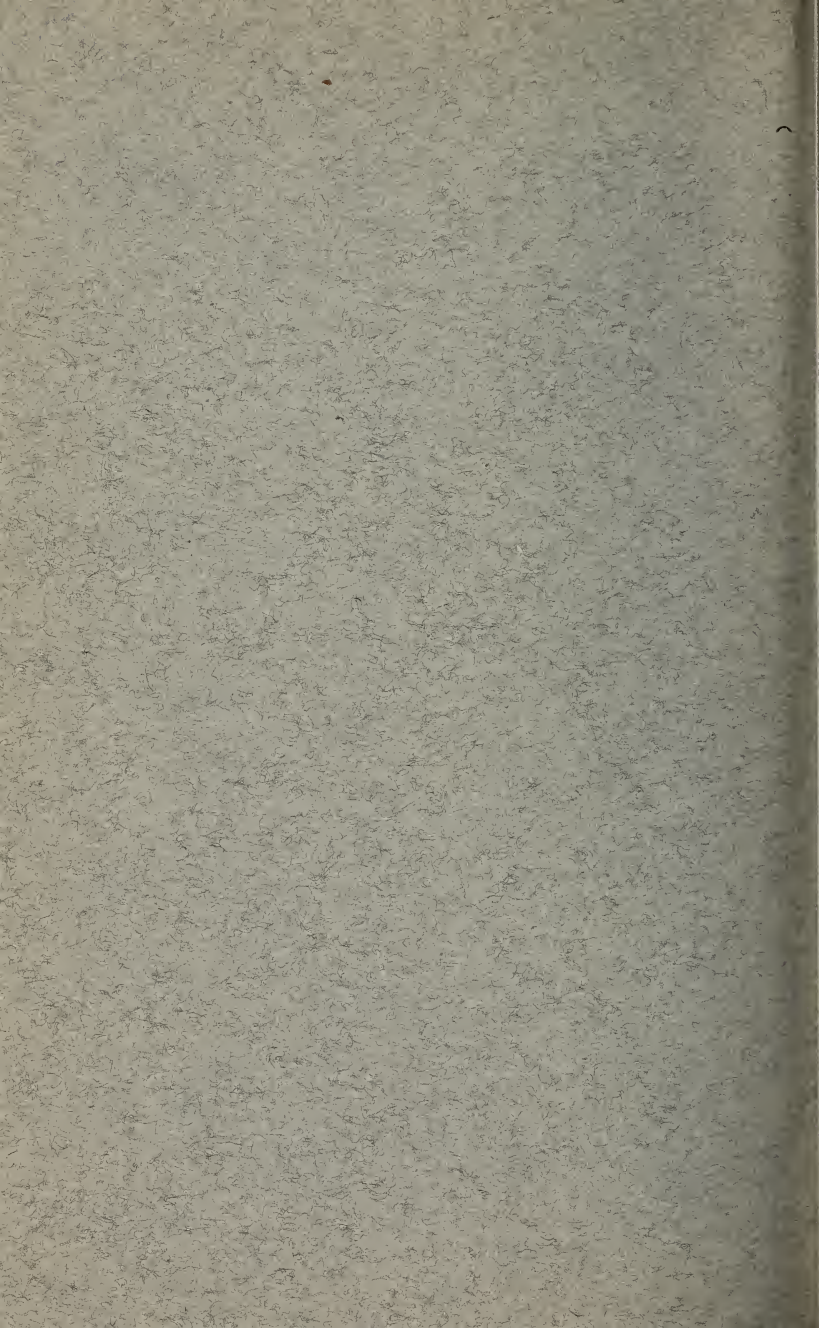
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BIENNIAL REPORT
OF THE
REGENTS
OF THE
UNIVERSITY OF COLORADO

LIBRARY
OF THE
UNIVERSITY OF ILLINOIS



1908-1910



Seventeenth Biennial Report
OF THE
REGENTS
OF THE
UNIVERSITY OF COLORADO

LIBRARY
OF THE
UNIVERSITY OF ILLINOIS



BOULDER, COLORADO

October 1, 1910

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UNIVERSITY OF COLORADO.

SEVENTEENTH BIENNIAL REPORT OF THE REGENTS, 1908-1910.

To the State Superintendent of Public Instruction, and the Eighteenth General Assembly:

The Seventeenth Biennial Report, from October 1, 1908, to October 1, 1910, is herewith presented by the Regents.

INTRODUCTORY STATEMENT.

This biennial period may be summed up as one of remarkable growth and development, and inadequate funds to meet the conditions though, some of the immediate needs for buildings have been generously met. Especial attention is called to the character and extent of the publications of the Faculty and to the experimental and research work undertaken or proposed. We append a list of references to some of the most important features of this Report.

Growth, pp. 4, 60.

New Buildings, p. 58.

Gifts and Bequest, pp. 50, 59, 61, 68, 83.

"Stratton Field," p. 52.

Experiment and Research, pp. 6, 17, 35-39, 47.

Publications by Professors, pp. 10, 31, 42.

Archaeological Research, p. 19.

Timber-Testing Station, p. 36.

Mountain Laboratory, p. 18.

Work of State Geologist, p. 24.

Revision of Curriculum in College of Liberal Arts, p. 8.

Revision of Courses in College of Commerce, p. 20.

Development of the College of Education, pp. 21, 23.

Scope of Summer Session, p. 27.

Standards of the School of Law, p. 49.

Union of the Denver and Gross College of Medicine with the University Medical School, p. 46.

Associated Students, p. 53.

Need of Increased Regular Income, pp. 6, 7, 21, 27, 59, 60.

Need of Buildings, pp. 28, 48, 59.

Need of Funds for Graduate School and Research, pp. 6, 18, 35, 47-48, 59, 60.

COLLEGES AND SCHOOLS OF THE UNIVERSITY.

The Colleges and Schools of the UNIVERSITY OF COLORADO are the following:

I. COLLEGE OF LIBERAL ARTS.

Courses leading to the degree B. A.

II. COLLEGE OF COMMERCE.

Course leading to the degree B. A. and special certificate.

III. COLLEGE OF EDUCATION.

Course leading to the degree B. A. and special certificate.

IV. GRADUATE SCHOOL.

Leading to the degrees M. A. and Ph. D.; also M. S., C. E., E. E., M. E.

V. COLLEGE OF ENGINEERING.

Civil Engineering, leading to the degree B. S. (C. E.).

Electrical Engineering, leading to the degree B. S. (E. E.).

Mechanical Engineering, leading to the degree B. S. (M. E.).

Chemical Engineering, leading to the degree B. S. (Ch. E.).

VI. SCHOOL OF MEDICINE.

Leading to the degree M. D.

VII. SCHOOL OF LAW.

Leading to the degree LL. B.

VIII. SUMMER SCHOOL.**ATTENDANCE.**

Years.	Univ. Students.	Summer School Students.
1891-2	66	...
1907-8	961	126
1908-9	1,041	129
1909-10	1,108	168
1910-11	1,300 (estimated)	188

DEGREES CONFERRED.

In 1909 and 1910 degrees were conferred as follows:

	1909	1910
College of Liberal Arts.....	72	82
Graduate School	15	14
College of Engineering	32	34
School of Medicine.....	11	8
School of Law.....	29	21
Honorary.	2	1
	<hr/>	<hr/>
	161	160

GRADUATES.*

The register of the graduates now shows the following figures:

College of Liberal Arts.....	712
Graduate School	134
College of Engineering.....	203
School of Medicine.....	192
School of Law.....	222
Honorary Degrees	21
	<hr/>
	1,484

*Graduates of the Preparatory School, from the beginning until the School was discontinued, September, 1907, and not included in the above summary, 587.

GRADUATE SCHOOL.

The attendance at the Graduate School has more than doubled since the last biennial period; 37 were enrolled in 1907-1908, and 83 in 1909-1910.

Higher degrees have been conferred in course upon 29 candidates, as follows: Doctor of Philosophy, 1; Master of Arts, 20; Civil Engineer, 4; Mechanical Engineer, 1; Master of Science, 3. The theses presented for these degrees have been of a high order.

The honorary degree, Doctor of Laws, has been conferred upon three candidates: In 1909 upon Henry Moore Teller, and Charles Alfred Lory; in 1910 upon Lewis Frederick Pilcher.

The Graduate School was reorganized May 11, 1909, by the appointment of a Dean, a Secretary, and a Graduate Committee. The Dean, Secretary, and two other professors constitute the Graduate Committee. The officers for 1910-11 are: J. Raymond Brackett, Dean; S. Epsteen, Secretary; John B. Phillips, Francis Ramaley.

1. More and Better Teaching Needed.—The great increase in the number of students demands a readjustment of the teaching force; several departments should be divided and new professors appointed; more instructors are needed. If the energies of professors are entirely drained by committee work and undergraduate teaching, the Graduate School will suffer. The University has entered upon many phases of investigation of great moment to the State, as is shown in other pages. These investigations require the service of the best professors and instructors that can be obtained. Salaries should be sufficient to enable the University to keep able men.

2. More Books and Apparatus Needed.—It is a calamity to the Graduate School that this year there is no money for books or apparatus. An old and well-established university might live upon its accumulations; but a year of deprivation comes very near to the life of this School. The appropriation for the next two years should be ample for the growth of the institution.

3. Graduate Fellowships and Scholarships Needed.—The care of the State is asked, not only in providing additional instructors and equipment, but also in furnishing those advantages and inducements which will put the Graduate School of the University on some equality with other graduate schools. An up-to-date graduate school must have a body—it may be a small body—of first-class students to set a standard of work. Our departments of biology, zoology and geology are well co-ordinated for graduate work; they have one of the most attractive locations in the world, but it is hard to keep good graduate students even in these departments, much less in others less favored; able students are sooner or later drawn to other graduate schools by superior inducements, not of field or instruction, but of money

or of position. The continual cutting off at the top results in great loss of power and prestige. These students of ability are needed here; some can teach; all can help in original investigation. There should be established at least one fellowship and one scholarship of liberal income for each professor that offers graduate work; and this number should be increased from year to year.

The Graduate School is the training place for special investigation in science, in philosophy, in literature, in history, in sociology. The scholarship of the University is judged by the quality of work done in preparing students for higher degrees. It is a matter of importance to every citizen of Colorado that this work be of a high standard of excellence, and that ample means be provided. The time has come when the Legislature should look into the needs of the Graduate School and provide for its support.

COLLEGE OF LIBERAL ARTS.

The College of Liberal Arts has been moving forward almost too rapidly, the present year showing an increase of over twenty per cent. But the department is paying a heavy penalty for its success in that the number of students has outstripped the teaching force. The present situation is serious, and obviously we cannot reduce the number of students or further dilute the teaching. The people of the commonwealth strenuously and justly demand that their youth shall be given the best educational opportunities of the present day. We must have more and better teachers. No other desideratum is at all comparable to this absolute need. By its teaching alone a College of Liberal Arts must ultimately stand or fall, and we cannot afford to dally on the danger line of inadequacy. Obviously any real improvement implies better salaries for junior teachers as well as more teachers. But the money spent in this way will be applied directly on the most vital and immediate problem of the University.

Furthermore, the new group system, which represents the most important step toward better things we have taken for two decades, will demand a greater number of advanced courses

for the junior and senior classes. Failure to supply this demand would jeopardize this invaluable improvement and seriously hamper our general progress for the next twenty years.

There are many other needs of the College of Liberal Arts, but, pressing as they are, they are negligible in comparison with the imperative necessity outlined above.

The very nature of the preceding statement of needs must imply a confident belief that this division of the University can report a most gratifying biennium. If more and better teachers are required it is because there are more and better students; and there is every ground for encouragement.

The new Group System came into effect with the matriculants of the year nineteen hundred and nine. Under this plan provision is made for a combination of certain fundamental subjects and free electives with special work intended to be more scholarly and more finally valuable both for cultural attainments and scientific efficiency. In accordance with the latter idea the student is required to take a large part of his group (made up of a major and minors) in his Junior and Senior years when it is possible to do real University work. Moreover the plan adapts itself readily to the needs of students who are looking forward to further work in professional and technical schools. The first year of work under the new system confirms the expectation that it would meet a genuine educational need. Already the undesirable scattering of the once fashionable elective system has been checked, and we are laying a foundation for courses that shall lead to real power in some special field without neglecting other elements of a liberal education; and it is believed that the favorable results will not be limited to scholarship, but will extend to the general character and fiber of the students enjoying the advantages of the new plan.

The members of the Faculty have been more active than ever before in the matter of research and publication. And it may be seen by reference to the publications of articles and investigations here appended that their activities have covered a large field, including matters of utilitarian concern to the industrial world in general, and Colorado in particular, as well as subjects of purely literary and cultural interest. It is to be hoped that productivity of this sort will increase with a grow-

ing staff. Detailed reports of the Summer School, of the College of Commerce, of the College of Education and of the Geological Survey will be found following this report.

Faculty.

The following promotions have been made in the last two years: Junius Henderson, B. A., to be Professor of Natural History, June, 1909; Milo G. Derham, Ph. D., to be Professor of Latin, June, 1910; Miss Ellen C. Jackson, B. A., to be Instructor in Latin for the year 1909-10; Ferd J. Lockhart, to be Instructor in Journalism, September, 1909; Easley S. Jones, M. A., to be Instructor in English, June, 1910.

The following appointments have been made: John S. McLucas, M. A., to be Professor of English, September, 1909; Miss Grace Fleming van Sweringen, Ph. D., to be Professor of German, September, 1909; Lawrence W. Cole, Ph. D., to be Professor of Psychology, September, 1910; Miss Mildred S. McArthur, M. A., to be Instructor in German, September, 1909; David J. MacDonald, M. A., to be Instructor in Education, September, 1909; Miss Elva Cooper, M. A., to be Instructor in Mathematics, September, 1910; Arnold J. Lien, M. A., to be Instructor in Economics and Sociology, September, 1910; F. M. Handy, B. A., to be Instructor in Geology for 1910-11; William V. Casey, to be Instructor in Education, September, 1910; Paul M. Dean, B. A., to be Instructor in Chemistry, September, 1910.

The following members of the Faculty have severed their connection with the University: Professor Mary Rippon, June, 1909; Professor George C. Taylor, Ph. D., June, 1909; Professor Vivian A. C. Henmon, Ph. D., June, 1910; Arthur L. Tatum, M. S., June, 1910; Samuel C. Black, M. A., D. D., June, 1910; Clyde L. King, M. A., August, 1910; Miss Ellen C. Jackson, B. A., June, 1910; Hampartsoon H. Der Harootunian, B. A., June, 1910; Henry A. Hartman, Ph. D., June, 1910.

By the resignation of Miss Rippon the University loses the senior member of the Faculty. Her activity has covered practically the whole period of growth of the College of Liberal Arts, and she has won countless friends among the Faculty, Alumni and students.

In each case the severance was due to the wish of the in-

structors or professors enumerated, and all of them are followed by the best wishes of the University.

The following members of the Faculty have been granted leave of absence: Dean Fred B. R. Hellems, Ph. D., for the year 1909-10; Professor John B. Ekeley, Ph. D., for the year 1909-10; Professor John B. Phillips, Ph. D., for the year 1908-9; Professor Charles C. Ayer, Ph. D., for the year 1910-11; Professor Milo G. Derham, Ph. D., for one-half year, February, 1909; Miss Martha G. McCaulley, M. A., for the year 1910-11; Assistant Professor Ralph D. Crawford, M. A., for the year 1910-11; Margaret S. Carhart, M. A., for the year 1910-11.

Temporary appointments: Professor Vivian A. C. Henmon, Ph. D., was Acting Dean for the year 1909-10; Walter Runge, Ph. D., was Acting Professor of Chemistry for the year 1909-10; Clyde L. King, M. A., was Acting Professor of Economics and Sociology for the year 1908-9; Milo G. Derham, Ph. D., was Acting Professor of Latin for the year 1909-10; Miss S. Antoinette Bigelow, M. A., is to be Acting Dean of Women and Instructor in English Literature for the year 1910-11; S. Griswold Morley, Ph. D., is to be Acting Professor of Romance Languages for the year 1910-11; Margaret L. Wheeler, M. A., is to be Instructor in English for the year 1910-11; Albert N. Gilbertson, M. A., was Instructor in Psychology for the year 1909-10.

Publications.

The following table will indicate the publications of the Faculty of the College of Liberal Arts during the past two years:

Edith M. Allison, B. A., Assistant in Biology:

"Bibliography and History of Colorado Botany." University of Colorado Studies, Vol. VI., No. 1.

"The Scales of Some American Cyprinidae" (with Prof. T. D. A. Cockerell). Proc. Biological Society of Washington, 1909.

Charles C. Ayer, Ph. D., Professor of Romance Languages:

"Foreign Drama on the English and American Stage. I. French Drama." University of Colorado Studies, Vol. VI., No. 4. II. "German Drama." University of Colorado Studies, Vol. VII., No. 1.

George M. Chadwick, Professor of Music:

"Oregon Transcriptions." University of Colorado Studies,
Vol. VI., No. 4.

T. D. A. Cockerell, Professor of Systematic Zoology:

About 160 papers published. The following are the most important:

"Descriptions and Records of Bees." Annals and Magazine of Natural History, 1908-10.

"Descriptions of Tertiary Plants." American Journal of Science, 1908-10.

"Fossil Insects from Florissant, Colorado." Bull. American Museum of Natural History, 1909.

"Descriptions of Tertiary Insects." American Journal of Science, 1909.

"Descriptions of Some Bees in the U. S. National Museum." Proc. U. S. National Museum, 1909.

"Descriptions of Hymenoptera from Baltic Amber." Mitt. Geol. Pal. Inst. u. Bernsteinsammlung der Univ. Konigsberg (Prussia).

"The Darwin Celebration at Cambridge." Popular Science Monthly, 1910.

"The Miocene Trees of the Rocky Mountains." American Naturalist, 1910.

"Scales of the African Characinid Fishes." Smithsonian Miscellaneous Collections, 1910.

"The Future of the Human Race." Popular Science Monthly, 1910.

"New and Little-known Bees." Trans. American Entomological Society, 1910.

About 385 new species have been described. Articles not cited have appeared in Canadian Entomologist, Nature, Entomologist, Science, Nautilus, Entomological News, Jour. of Economic Entomology, Dial, Flora og Fauna (Denmark), Annals Entomological Society of America, Torreyia, Zoologischer Anzeiger (Germany), U. of Colo. Studies, Proc. Entomological Society of Washington, Entomological Record, Muhlenbergia, Jour. of the New

York Entomological Society, Trans. Kansas Academy of Science, Psyche, etc.

Lawrence W. Cole, Professor of Psychology and Education:

"Visual Discrimination in Raccoons" (with F. M. Long).
Journal of Comparative Neurology and Psychology, Vol. XIX., No. 6, December, 1909.

Ralph D. Crawford, M. A., Assistant Professor of Geology:

"Geology and Petrography of Sugarloaf District, Boulder County, Colorado." University of Colorado Studies, Vol. VI., No. 2.

"Notes on the Intrusive Rocks of the Main Tungsten Areas of Boulder County, Colorado." First Report Colorado Geol. Survey, 1908.

"The Hahns Peak Report, Routt County, Colorado" (with R. D. George). First Report Colorado Geol. Survey, 1908.

"A Preliminary Report on the Geology of the Monarch Mining District, Chaffee County, Colorado." Bull. 1, Colorado Geol. Survey, 1910.

Harry A. Curtis, B. S., M. A., Instructor in Chemistry:

"Application of Rapid Electrolytic Methods to the Analysis of Western Ores." University of Colorado Journal of Engineering, No. 6, 1909-10.

Milo G. Derham, Ph. D., Professor of Latin:

"Borrowings and Adaptations from the 'Iliad' and 'Odyssey' in Matthew Arnold's 'Sohrab and Rustum.'" University of Colorado Studies, Vol. VII., No. 1.

Gideon S. Dodds, M. A., Instructor in Biology:

"Distribution of Conifers on the Mesas" (with W. W. Robins). University of Colorado Studies, Vol. VI., No. 1.

Charles B. Dyke, M. A., Instructor in Education:

"Essential Features in the Education of the Child Races." Rept. of N. E. A., Denver, Colorado, 1909.

John B. Ekeley, Ph. D., Professor of Chemistry:

"The Composition of Some Colorado Tungsten Ores." *Western Chemist and Metallurgist*, Vol. IV., No. 12.

"The Electrochemistry of the Solution of Gold in Potassium Cyanide" (with Arthur L. Tatum). *Western Chemist and Metallurgist*, Vol. V., No. 1.

"Some Organic Tungstates." *Journal of the American Chemical Society*, Vol. XXXI., No. 6.

Saul Epstein, Ph. D., Secretary of the Graduate School; Professor of Mathematics:

"Rationality Groups in Prescribed Domains." *Annals of Mathematics* (Harvard). In press.

"The Moment of Inertia of a Regular Polygon" (with E. H. Ellis). *University of Colorado Journal of Engineering*, No. 5, 1908-9.

"Graphical Illusions of Convergence of Series" (with F. W. Doolittle). *University of Colorado Journal of Engineering*, No. 4, 1907-8.

Russell D. George, M. A., Professor of Geology:

"Polished Pebbles." *Science*, new ser., Vol. XXV., April, 1907.

"Outline Notes on the Important Rock-making Minerals." Published 1909.

"The Main Tungsten Area of Boulder County, Colorado." First Rept. of Colorado Geol. Survey, 1908.

"The Hahns Peak Report, Routt County, Colorado" (with R. D. Crawford). First Rept. Colorado Geol. Survey, 1908.

F. B. R. Hellems, Ph. D., Dean, Professor of Latin:

"The Character of the Flavian Literature, 69-117 A. D." *University of Colorado Studies*, Vol. VI., No. 6.

"Stephen Phillips as a Writer of Tragedy." *Atlantic Monthly*, Vol. CXX., No. 6.

"Some Recent Poetry and the Emotionalizing of Evolution." *Poet Lore*, Vol. XXII., No. 11.

"Music and Comedy in Eighteenth Century Italy." *The Dial*, Vol. XLV., No. 539.

"Social and Business Life of Ancient Rome." *The Dial*, Vol. XLVII., No. 553.

"The Quest of the Ideal Democracy." *The Dial*, Vol. XLVI., No. 541.

Various minor reviews in *Classical Philology* and *The Dial*.

Vivian A. C. Henmon, Ph. D., Professor of Psychology and Education:

"Sex Differences and Variability in Color Perception." *University of Colorado Studies*, Vol. VII., No. 4.

"Mental Selection." *Colo. School Journal*, Vol. XXIV., No. 5.

Junius Henderson, B. A., Professor of Natural History and Curator of the Museum:

"An Annotated List of the Birds of Boulder County, Colorado." *University of Colorado Studies*, Vol. VI., No. 3.

"Scientific Expeditions in Northwestern Colorado in 1909. I. Itinerary, Topography and Geology." *University of Colorado Studies*, Vol. VII., No. 2.

"Mollusca Collected in Northwestern Colorado in 1909." *University of Colorado Studies*, Vol. VII., No. 2.

"Fossil Invertebrates from Northwestern Colorado." *University of Colorado Studies*, Vol. VII., No. 2.

"The Red Beds of Northern Colorado." *Journal of Geology*, Vol. XVI., pp. 491-492, Sept.-Oct., 1908.

"Result of a Hailstorm." *The Wilson Bull.*, Vol. XX., pp. 231-214, Dec., 1908.

"The Early Western Surveys." *The Condor*, Vol. XI., pp. 67-68, March, 1909.

"The Foothills Formation of North Central Colorado." *First Report of Geol. Survey*, pp. 149-185.

Clyde L. King, M. A., Instructor in Economics and Sociology:

"The Fenian Movement." *University of Colorado Studies*, Vol. VI., No. 3.

"The Kansas School System—Its History and Tendencies." *Kansas Historical Collections*, Vol. XI., 1910.

Oliver C. Lester, Ph. D., Professor of Physics:

"Notes on the Heating Effects in Metals Produced by Bombardment with Kathode Rays." University of Colorado Studies, Vol. VI., No. 4.

"Some Recent Advances in the Science of Physics." Proceedings Colorado Scientific Society, Vol. IX., Aug., 1909.

Melanchthon F. Libby, Ph. D., Professor of Philosophy:

"Pre-Thalesian Philosophy." University of Colorado Studies, Vol. VII., No. 4.

David J. MacDonald, M. A., Instructor in Education:

"Experience and Training." Colorado School Journal, Vol. XXV., No. 6.

Mildred S. McArthur, M. A., Instructor in German:

"Schleswig-Holstein in Modern German Literature." Colorado Monthly, March, 1910.

S. Griswold Morley, Ph. D., Acting Professor of Romance Languages:

"Modern Spanish Lyrics." Holt & Co., New York (in press). Book in collaboration with Prof. Hills of Colorado College.

"A Spanish Town." McClure's Magazine, January, 1909.

"Abandoned Roads." New England Magazine, October, 1909.

John B. Phillips, Ph. D., Secretary of College of Commerce; Professor of Economics and Sociology:

"Freight Rates and Manufactures in Colorado. A Chapter in Economic History." University of Colorado Studies, Vol. VII., No. 1.

"The Declining Birthrate." University of Colorado Studies, Vol. VII., No. 3.

"Review of Sumner's Equal Suffrage." Economic Bull., Vol. IV., No. 3, September, 1910.

Francis Ramaley, Ph. D., Professor of Biology:

"The Botanical Opportunity in Colorado." University of Colorado Studies, Vol. VI., No. 1.

"Climatology of the Mesas Near Boulder." University of Colorado Studies, Vol. VI., No. 1.

- "Studies in Lake and Streamside Vegetation." I. Redrock Lake, near Ward, Colorado (with W. W. Robbins). University of Colorado Studies, Vol. VI., No. 2.
- "The Silva of Colorado. IV. Forest Formations and Forest Trees." University of Colorado Studies, Vol. VII., No. 1.
- "Remarks on Some Northern Colorado Plant Communities, with Special Reference to Boulder Park (Tolland, Colo.)." University of Colorado Studies, Vol. VII., No. 4.
- "Wild Flowers and Trees of Colorado." 8vo. book, 78 pages, Boulder, Colo., 1909.
- "European Plants Growing Without Cultivation in Colorado." Annales du Jardin Botanique de Buitenzorg, 2e Serie Suppl. III., pp. 493-504, 1909.
- "Two Imperfectly Known Species of Crataegus." Bull. Torr. Bot. Club, Vol. XXXV., pp. 581-583, 1908.
- "New Colorado Species of Crataegus." Bot. Gaz., Vol. XLVI., pp. 381-384, 1908.
- "The Educational Significance of Minot's Theory of Age and Growth." Educational Review, October, 1909.

Wilfred W. Robbins, M. A., Instructor in Biology:

- "Distribution of Conifers on the Mesas" (with G. S. Dodds). University of Colorado Studies, Vol. VI., No. 1.
- "Distribution of Deciduous Trees and Shrubs on the Mesas." University of Colorado Studies, Vol. VI., No. 1.
- "Studies in Lake and Streamside Vegetation. I. Redrock Lake, near Ward, Colo." (with Professor Francis Ramaley). University of Colorado Studies, Vol. VI., No. 2.
- "Remarks on the Climatology of Northwestern Colorado." University of Colorado Studies, Vol. VII., No. 2.
- "An Introduction to the Study of Rocky Mountain Bees" (with Professor T. D. A. Cockerell). University of Colorado Studies, Vol. VII., No. 3.
- "Introduction to the Study of the Ants of Northern Colorado." University of Colorado Studies, Vol. VII., No. 4.
- "A Botanical Trip in Northwestern Colorado." University of Colorado Studies, Vol. VII., No. 2.
- "Climatology and Vegetation in Colorado." Bot. Gaz., Vol. XLIX., pp. 256-280, 1910.

Walter Runge, Ph. D., Instructor in Chemistry:

"Synthetische Versuche mit Hexa-hydroanilin and Hexahydro-m-toluidin." Inaugural Dissertation zur Erlangung der Doktorwürde Gottingen, 1909.

Arthur L. Tatum, M. S., Instructor in Chemistry:

"Electrochemistry of the Solution of Gold in Potassium Cyanide" (with Professor J. B. Ekeley). Western Chemist and Metallurgist, Vol. V., No. 1.

"The Balancing of Chemical Equations." Western Chemist and Metallurgist, Vol. V., No. 5.

"A Rotating Electrode Apparatus." Western Chemist and Metallurgist, Vol. V., No. 5.

"The Refractometer in Quantitative Analysis." Western Chemist and Metallurgist, Vol. VI., No. 4.

Frank E. Thompson, B. A., Professor of Education:

"The Teacher's License." Colorado School Journal, Vol. XXIV., No. 4.

"College and High School Relations." Colorado School Journal, Vol. XXV., No. 4.

"Child Study and Race Improvement." Colorado School Journal, Vol. XXV., No. 8.

"Higher and Professional Education." Colorado School Journal, Vol. XXV., No. 1.

"The Authority of Childhood." Colorado School Journal, Vol. XXV., No. 3.

"Cause and Effect in Education." Colorado School Journal, Vol. XXVI., No. 1.

Grace Fleming von Sweringen, Ph. D., Professor of German:

"Women in the Germanic Hero-Sagas." Journal of English and Germanic Philology, October, 1909.

Research Work in the College of Liberal Arts.

In the last report may be found indications of the various lines in which it was felt research work by the respective departments could be of more direct service to the commonwealth of

Colorado. But it is quite obvious that genuine scholarly research of any sort is worthy of encouragement by any State University, quite apart from immediate practical return; and it is pleasing to record that in practically every department we have evidence of the desire to conduct original investigations. At the same time it is true that in practically every instance, increased productivity, and the results already attained should be only an earnest of what may be accomplished in the near future.

The following bare list will indicate the directions in which the respective departments are at present turning their investigating energies.

Botany and Zoology.

Fauna of Colorado.

Insects and Fishes, particularly classification and description thereof.

Fossil Animals and Plants.

Economic Botany.

Climatology.

Study of Alpine and Sub-Alpine Plants at the Mountain Laboratory at Tolland, Colo. [This important work is described in the 1910 Summer Session Bulletin.]

Physics.

Radio-activity.

Electricity.

Chemistry.

Electro-chemistry.

Tungsten and its Compounds.

Synthetic Organic Chemistry.

Geology.

See Reports of State Geologist.

History, Economics and Sociology.

Local History.

Taxation.

Municipal Government.
Industrial Problems.
Sociology.
Transportation.

Philosophy, Psychology and Education.

Relations of Philosophy to Literature and Life.
Animal Psychology.
Psychognosis in Great Writers.
Relations of the University to the High Schools.
Economy in Training.
Continuity in Education.

Latin and Greek.

Greek Philosophy, especially Pre-Socratic.
Classical Influence on English Poetry.
Relation of Ancient and Modern Scientific Thought.
Roman History from 69-117 A. D.

Modern Languages.

Spanish Lyrics.
Relation of the French and German Stage to the English and American Stage.
Problems in Comparative Literature.
Types of Character in some great German Writers.

American Archaeology.

Since the last report, October 1, 1908, the best of the material from the Cannonball ruins in Southwestern Colorado has been installed in three cases in the Museum. During the academic year 1909-1910, a course in Archaeology was given by Dr. Edgar L. Hewett and Mr. J. P. Harrington, and arrangements have been perfected for a similar course during the present academic year. In the summer of 1910 Professor Junius Henderson and Mr. W. W. Robbins (Instructor in Biology) spent several weeks in the field at the Rito de los Frijoles, New Mexico, in co-operation with the School of American Archaeology, studying the geology, botany,

zoology and climatology of the region with special reference to the ancient culture. Valuable collections were obtained and even more valuable notes, which are now being worked up for publication.

COLLEGE OF COMMERCE.

The College of Commerce was established in the summer of 1906. It is designed to afford a higher university education combined with a preparation for practical business life.

This department was reorganized in March, 1909. There are now four lines of study leading to the degree of B. A.: Banking, Manufactures, Journalism and Trade, Transportation and Consular Service. Certain common basic studies are required in each course, among which are: Commercial Law (Sales, Contracts, Agency, Bills and Notes, Corporations, Etc.); Accounting; French, German or Spanish; Science; and English.

During the past year new courses in Railroad Transportation, Corporation Finance, and Journalism have been conducted. The following lectures were delivered before the class in Journalism:

Editorial Writing, Mr. Hugh O'Neil.

Newspaper English, Mr. Charles Lee Bryson.

Newspaper Humor, Mr. Bide Dudley.

News Values in Reporting, Mr. J. R. Nolan.

Addresses before the class in Transportation were delivered by Mr. W. J. Martin, General Manager of the Rock Island Lines in the West, and by Traveling Passenger Agent, Mr. T. A. McKinnon.

There is a substantial growth of this department of the University as appears from the number of students now enrolled. As this is the second year since the reorganization of the course into four groups, and as the studies of the freshman and part of the sophomore years are identical in each group, it is impossible to give the number of students in each differentiated course, as manufactures, banking, etc. Few students have as yet selected the line of study in which they wish to take their degree.

The following additional courses should be provided for students in this department:

- I. A general course in Commercial Law. No such course is now given in the Law School.

II. Advertising and Salesmanship.

III. Business Organization.

IV. Resources of the United States and Foreign Trade. The Department of Economics is unable to give these additional courses with the present equipment. Classes in this department range as high as 85, and efficient teaching is well-nigh impossible. Another instructor is urgently needed if the course in Commerce is to be valuable.

THE COLLEGE OF EDUCATION.

The College of Education was authorized by the Board of Regents in January, 1908, and organized for work in the spring of that year. It was and is essentially a reorganization of the Department of Education which had been a department of the College of Liberal Arts for many years. This action though a little delayed was directly in line with recent university tendencies toward practical specialization. The College of Education is simply a scheme of organization which utilizes and directs a part of the faculty and equipment of the College of Liberal Arts in a much more efficient way than heretofore in the study of education and the training of teachers. Those who elect and complete its course of study receive the regular B. A. degree and in addition a Bachelor's Diploma in Education. This latter is a document which it is intended shall be held by those only who are experts in the science and art of teaching. Similar documents are now being issued and recognized throughout the country as the distinguishing certificate of the better prepared and more efficient teacher. The Legislature of 1909 upon the unanimous recommendation of the Council of Education of the Colorado Teachers' Association passed House Bill No. 423, which gives a state-wide license to teach to certain college graduates who have studied education. This, in a way, has stamped with approval the training of educators in college and has greatly encouraged college students to take up this line of work. During the past two years attendance in classes in Education has much more than doubled. At present (first month, 1910-11) there are enrolled in such classes 241 persons, of whom 170 have signified intention of completing requirements for the Bachelor's Diploma and State

License. The remaining 71, presumably, are aiming at the State License. The Diploma has been granted thus far to 55 persons, the License to these and 62 others. Practically all have joined the already large company of teachers who have been trained at the University of Colorado and are in responsible teaching and supervisory positions.

Of course the colleges have always trained high school teachers as well as many superintendents and principals, but such training was often incidental. Lately we have been thinking and doing the work more conscientiously. The experiences of the past few years have demonstrated the need of a more serious study of Education in the college and of the more systematic training of teachers by such institutions. In line with a growing conviction that the work deserves it, all the higher schools of the country including the state universities and a great many of the independent colleges, have definitely organized this work through institutions variously known as colleges of education, schools or departments of education, or teachers' colleges. In almost all instances the essentials are the same as those incorporated in our College of Education, that is, the student is required to take a more systematic course in the subjects he expects to teach and to make a more particular study of pedagogical things. Likewise, in practically every state the same action has been taken as to the license to teach. The movement the country over has differentiated, or practically created, a *profession* as distinguished from a *trade* of teaching.

Practice teaching has offered in the most of these schools something of a problem but, so far, has presented little difficulty here. A scheme of co-operation with the Boulder public schools has provided sufficient opportunity for observation and practice and has been mutually profitable for college and city. The college has the advantage, for its apprentices, of real conditions—typical schoolhouses, actual courses of study, commonly used text-books—all these and superintendence at practically no expense. The city has added to its list of teachers as assistants all the senior students of the College of Education, persons of training and frequently of experience. By acting as assistants to regular teachers and by taking charge especially of the slower divisions of the larger classes they supplement the work of regular teachers and

save many pupils for promotion who otherwise would become laggards in the system.

Much of the economy of this scheme is obvious but it may be seen clearly that the greatest gain consists in this: the device turns into the teaching profession, with practically no additional expense to the State, a large number of picked and cultured persons who otherwise would not teach at all. It all operates to bring to the State's most important service many of its very best citizens. This point will perhaps be better appreciated when it is borne in mind that at least half of the teachers of the State have had no training beyond that afforded by the high schools and that a goodly share of these have not had even so much as the high school education.

The College of Education work in this, as in other states, will consist for the most part in the training of teachers for the high schools, and of principals and superintendents. That the high school teacher shall have training practically equivalent to that presented by the Bachelor's Diploma in Education is now a fixed principle in American education. This was stated in the report of the Committee of Fifteen in 1895, it is prominent in the standards for accrediting of the North Central and other Associations of Colleges and Secondary Schools, and it is most emphatically brought out in the joint recommendations of the Committee of Seventeen on the Professional Preparation of High School Teachers. We are nearing the ideal announced long ago for American education: the teacher shall always be in scholarship and professional training at least four years ahead of his most advanced pupil. The college is peculiarly and obviously the institution in which to develop teachers and leaders of a kind the State needs. The equipment and faculty are adequate to give the academic training—and teachers, especially high school teachers, can never know too much. In the better colleges and universities there is an atmosphere of work, research and leadership which does much to develop scientific power and professional confidence. It would seem that there can be no question that a real profession of teaching is needed and that for such a profession training must be practically as serious and comprehensive as for law or medicine. We cannot safely entrust the training of our future citizens to little girls. The College of Education is, then, calculated and its course of study is designed to prepare

and inspire a large number of the students of the College of Liberal Arts to enter the service of the State in Education. The work proceeds upon the assumption that only those will accomplish much as teachers, at least as leaders, who have in general as a minimum of preparation that liberal acquaintance with knowledge and culture for which the better colleges stand. The prospective teacher must study the things he expects to teach, and related things, long enough and fully enough to be something of an authority. And then, obviously, the teacher must know, thoroughly, the nature, aims and tendencies of society, the nature, possibilities and rights of the individual and "the how" of helping him to learn his personal and social opportunities and responsibilities.

The minimum requirement for the B. A. degree and the Bachelor's Diploma in Education is 120 units, that is four years, of work which must include the following:

English Language (may include 4 units of Literature) 10 units
Classics and Mathematics, Mathematics and Science or

Science and Classics	15 units
History or Economics	6 units
Psychology (General and Educational).....	6 units
History of Education	6 units
Science and Principles of Education.....	3 units
Elementary Schools or Secondary Schools.....	3 units
Method in Education	2 units
Practice Teaching	4 units
Philosophy or Sociology or additional Education or Psychology	6 units
Group Electives, major and minor (subjects the student expects to teach)	50 units

WORK OF STATE GEOLOGIST.

The Sixteenth General Assembly created a State Geological Survey and appropriated \$5,000 a year for the biennial period. The head of the Department of Geology of the State University was made State Geologist and the office of the Survey was located at the University.

The Seventeenth General Assembly increased the appropria-

tion to \$10,000 per year. The University has given the Survey free use of office room, instruments, laboratories, library and other facilities.

The Survey has published two Reports. The first (September, 1909) contains the following papers:

"The Main Tungsten Area of Boulder County, Colorado," by R. D. George, with notes on the Intrusive Rocks by R. D. Crawford.

"The Montezuma Mining District of Summit County, Colorado," by H. B. Patton.

"The Foothills Formations of North Central Colorado," by Junius Henderson.

"The Hahns Peak Region of Routt County, Colorado," by R. D. George and R. D. Crawford.

The second (August, 1910) contains two bulletins:

"A Preliminary Report on the Geology of the Monarch Mining District, Chaffee County, Colorado," by R. D. Crawford.

"The Geology of the Grayback Mining District, Costilla County, Colorado," by H. B. Patton and others.

During the field season of 1910 the work begun in the Monarch-Garfield area was completed under R. D. Crawford. A total of 117 square miles has been covered and the final results of the investigation will appear in a forthcoming bulletin.

A second party in the field in 1910 in charge of H. B. Patton, assisted by C. E. Smith and A. J. Hoskin, and eight advanced students from the School of Mines, made a detailed study of the territory from Alma west to the crest of the Mosquito Range, a distance of some seven or eight miles, and about five miles in width from north to south. This area has been mapped in part, but another season will be required to complete the work. A map of the mining district of Alma has been completed.

The work on the clay investigation has been carried on under the direction of Prof. G. M. Butler of the School of Mines. Considerable work was done during the summer of 1909 by Professor Butler. During the summer of 1910 three parties were in the field, two under Professor Butler's personal supervision and one under Prof. F. F. Grout of the University of Minnesota. The investigation was carried on more extensively on the eastern

slope, but work was also done in the vicinity of the larger towns elsewhere through the State. More than 600 specimens have been collected, with full data as to their location, accessibility, etc. Much of the work of testing and classifying these samples has been done, and it is planned that a monograph of the Survey shall be published soon giving the results of the investigation.

During the summer of 1910 a party of two under Mr. Roy M. Butters of the University of Colorado made a detailed study of the stratigraphy of the foothills portion of the Front Range. The Lykins formation was followed from a few miles north of the Wyoming line south to Canon City. Considerable time was also spent on the Morrison, Lyons and Fountain formations. The Tertiary Bluffs on the north line of the State also received some study.

Map of Colorado.—The Survey has been at work on a general, a topographic and a geologic map of the State. The general map is now practically ready for the engraver. The topographic map, on a scale of eight miles to the inch, is ready for final revision. The drafting of the geologic map is about three-fourths done, and an explanatory text to accompany the map is well under way. The work of these maps has been greatly delayed owing to the lack of funds, and must be still further delayed unless larger appropriations are made for the Survey.

High School Collections.—During the field seasons of 1909 and 1910 the Survey has been making collections of typical rocks and minerals of the State. The collections of rocks will consist of about 200 specimens. It is the purpose of the Survey to place one of these collections in each High School in the State. A descriptive text to accompany the collections is under way. The rock specimens are now being numbered and classified, and will soon be ready for distribution. The mineral collections will not be completed until after the field season of 1911.

Bibliography of Geological Literature of Colorado.—This work is well under way and will be ready for the printer in a few months. It will contain detailed and classified title and topic references to all the geological literature bearing on the State.

SUMMER SESSION.

The Summer Session has had a steady, though moderate

growth from year to year. There were enrolled 129 in 1908, 171 in 1909, 188 in 1910.

Considering that a very small fund has been allowed for the summer work (the Summer Session cost the State last year only about two dollars per student in attendance) and that it has been impossible to expand the advantages of the Summer Session to keep pace with the expansion of the University in general, this growth in attendance is all and more than we could expect.

Situation and climate seem to have conspired to make this one of the greatest centers in the country for summer study. All that is needed is enough funds to put the advantages of the Summer Session on a par with the advantages of the regular academic year.

The Summer Session should be recognized as one of the most important phases of the work of the University. It has abundantly justified itself up to the present time in spite of the necessary handicap of extreme economy. The courses offered have been well conducted by specialists of excellent training and standing from our regular Faculty and from those of other universities, and have been highly appreciated by students from Colorado and other states who have taken advantage of them.

But the scope of the Summer School should be much enlarged. It should offer still greater advantages to the teachers of Colorado, encouraging them to continue here their studies under the most competent guidance. It should be made to attract still larger numbers from other States, thus diffusing a knowledge of the University throughout the country.

For the next Session it is planned to try especially to meet the particular needs of the teachers of this State. A larger number of courses will be offered for their benefit. The School of Education will give courses of unusual strength and value.

COLLEGE OF ENGINEERING.

The College of Engineering has made substantial progress during the past two years. The number of students has increased from 271 in 1907-08 to 292 in 1909-10. One instructor has been advanced to the rank of Assistant Professor and one Assistant Professor has been advanced to the rank of Professor. Several

additional Assistants have been provided and the equipment has been increased. The new Power Plant with its battery of boilers and lighting plant has materially increased the laboratory facilities.

Buildings.

The new Heating, Lighting and Power Plant has been completed and the old Power Plant equipment has been removed from the Engineering Building; this has given some much needed room to the Electrical and Mechanical Departments and has materially increased the laboratory facilities. The installation of the new Engineering Experiment Station will require additional space; this space can be obtained by adding to the present Engineering Shops or may be provided for in an Engineering Building.

Instructional Force.

The following promotions have been made during the past two years: Saul Epstein, Ph. D. (Zurich), Assistant Professor of Engineering Mathematics, made Professor of Engineering Mathematics September 1, 1910; Clement C. Williams, C. E. (Colorado), Instructor in Civil Engineering, made Assistant Professor of Civil Engineering September 1, 1910.

The following appointments have been made during the past two years: Frederick W. Doolittle, B. A. (Princeton), B. S. (C. E.) (Colorado), Instructor in Civil Engineering, September 1, 1909; George I. Gay, B. S. (C. E.) (Colorado), Instructor in Civil Engineering, September 1, 1909; Edward C. Stocker, B. S. (C. E.) (Wisconsin), Instructor in Civil Engineering, September 1, 1909; Guy W. Smith, M. S. (Colorado), Instructor in Engineering Mathematics, September 1, 1909; James S. Mikesch, A. B. (Minnesota), Instructor in Engineering Mathematics, September 1, 1908; Harland C. Woods, B. S. (C. E.) (Nebraska), Instructor in Engineering Drawing, September 1, 1909; Ollison Craig, B. S. (M. E.) (Illinois), Instructor in Mechanical Engineering, September 1, 1909; Siebelt L. Simmering, B. S. (M. E.) (Colorado), Instructor in Mechanical Engineering, September 1, 1910; Joseph B. Morrill, B. S. (E. E.) (Colorado), Instructor in Electrical Engineering, September 1, 1910.

The following members of the Faculty have resigned during

the past two years: Alfred P. Poorman, C. E. (Colorado), Instructor in Civil Engineering, resigned June, 1909, and was appointed Assistant Professor of Mechanics in Purdue University; Frederick W. Doolittle, B. S. (C. E.), (Colorado), Instructor in Civil Engineering, resigned June, 1910, and was appointed Assistant Professor of Mechanics in University of Wisconsin; William Black, Jr., B. S. (M. E.), (Illinois), Instructor in Mechanical Engineering, resigned June, 1909, and was appointed Instructor in Mechanical Engineering in the University of Wisconsin; James S. Mikesh, A. B. (Minnesota), Instructor in Engineering Mathematics, resigned June, 1909, and was appointed Instructor in Mathematics in the University of Minnesota; Axel E. Berggren, B. S. (M. E.), (Iowa State College), Instructor in Mechanical Engineering, resigned June, 1910, and was appointed Instructor in Mechanical Engineering in the University of Wisconsin; George I. Gay, B. S. (C. E.), (Colorado), Instructor in Civil Engineering, resigned June, 1910, and was appointed Instructor in Civil Engineering in the University of Illinois; Jacob H. Wallace, M. E. (Missouri), Assistant Professor of Engineering Drawing, resigned to enter practical engineering work.

Dean Milo S. Ketchum was granted a year's leave of absence, 1909-1910. Prof. Herbert S. Evans was Acting Dean during the year. Assistant Professor Clement C. Williams was Acting Professor of Civil Engineering.

Civil Engineering Department.

The instruction in this department has been materially strengthened by the appointment of an additional instructor, and by the increase in the equipment. The efficiency of instruction has been increased by some minor changes in the course. Considerable commercial testing has been done, and increased facilities should be provided. The new Road Materials Testing Laboratory will materially add to the laboratory facilities.

Electrical Engineering Department.

The instruction in the Electrical Engineering Department has been made more efficient by the appointment of an addi-

tional instructor. Several important additions have been made to the equipment, resulting in added efficiency of instruction. The Department has been doing some work in commercial testing, and should be provided with additional apparatus for making commercial testing and for standardizing electrical instruments.

Mechanical Engineering Department.

The completion of the new Power House has materially increased the laboratory facilities, and will result in a decided increase in the efficiency of instruction. This department has made very marked improvement during the last two years.

Chemical Engineering Department.

The increase in the number of students in the Chemical Engineering Department has shown that there is a demand for men that are equipped to go into the industries in which a knowledge of chemistry is of prime importance. In addition to the course in Chemical Engineering there should be offered a course in Industrial Chemistry in which students take a course in general Engineering in addition to a large amount of Chemistry and allied sciences.

General Engineering Drawing.

The work in this department has been very satisfactory. The Freshman Drawing Room in the Engineering Shops is one of the best in the country, the lighting from the north windows and the skylight giving almost perfect illumination. The instruction given in Mechanical Drawing and Descriptive Geometry is excellent.

Engineering Mathematics.

The results obtained in the Department of Engineering Mathematics have shown in a very decided manner that the instruction in Mathematics to Engineering students should be given by a separate department in charge of men that are entirely familiar with the needs of the Engineer.

Engineering Language.

The change from ten semester hours of Foreign Language in the Freshman year to six semester hours of Foreign Language and four semester hours of Rhetoric has given most excellent results. By giving the course in Rhetoric and Foreign Language with a definite idea in the mind of the instructor it has been possible to give courses much more effective than it was formerly possible to give in classes containing both Engineering and Art students.

Publications.

The following books, papers and reports have been written by members of the Faculty of the College of Engineering during the past two years:

Dean Milo S. Ketchum:

"The Design of Highway Bridges" (book). Engineering News Publishing Co., 1908.

"Adhesion of Cement Mortar to Brick." University of Colorado Journal of Engineering, No. 5, 1909.

"Bond Stress in Reinforced Concrete." University of Colorado Journal of Engineering, No. 5, 1909.

"Report on Building Ordinance for Denver, Colorado."

"Specifications for Albion Dam, Boulder, Colorado."

Reports and Specifications for Numerous Engineering Works.

Professor Herbert S. Evans:

"The Power Plant of the University of Colorado." University of Colorado Journal of Engineering, No. 5, 1909.

Professor Saul Epstein:

"Rationality Groups in Prescribed Domains." Annals of Mathematics (in press).

"The Moment of Inertia of a Regular Polygon." University of Colorado Journal of Engineering, No. 5, 1909,

Professor Oliver C. Lester:

"Note on the Heating Effects Produced in Metals by Bombardment with Kathode Rays." University of Colorado Studies, Vol. VI, June, 1909.

"Some Recent Advances in the Science of Physics." Proceedings of the Colorado Scientific Society, August, 1909.

Assistant Professor C. C. Williams:

"Sewage Disposal at Boulder." University of Colorado Journal of Engineering, No. 5, 1909.

"Notes on the Flow of Water in Irrigation Ditches." University of Colorado Studies, June, 1910.

Mr. Guy W. Smith:

"The Oscillograph." University of Colorado Journal of Engineering, No. 5, 1909.

Mr. George L. Sullivan:

"Wage Systems in Shops." University of Colorado Journal of Engineering, No. 5, 1909.

Mr. Harland C. Woods:

"Survey of Lake Tamiahua." University of Colorado Journal of Engineering, No. 5, 1909.

Graduates of the College of Engineering Appointed to University Positions.

The following graduates of the College of Engineering have been appointed to, and are now holding positions as follows:

Charles C. Cochran, B. S. (M. E.) 1906, Assistant Professor of Machine Drawing, University of Kansas. 1906 to date

John C. Fitterer, B. S. (C. E.) 1904, Professor of Civil Engineering, University of Wyoming. 1908 to date

Howard C. Ford, B. S. (C. E.) 1904, C. E. 1907, Instructor in Civil Engineering, University of Colo-

- rado, 1904 to 1907; Assistant Professor of Irrigation Engineering and Surveying, Iowa State College1907 to date
- Frederick W. Doclittle, B. S. (C. E.) 1907, Instructor in Theoretical and Applied Mechanics, University of Illinois, 1908-1909; Instructor in Civil Engineering, University of Colorado, 1909-1910; Assistant Professor of Mechanics, University of Wisconsin.....1910
- Harry C. Gardner, B. S. (C. E.) 1906, C. E. 1909, Instructor in Civil Engineering, University of Pennsylvania.1909 to date
- George I. Gay, B. S. (C. E.) 1909, Instructor in Civil Engineering, University of Colorado, 1909-1910; Instructor in Civil Engineering, University of Illinois1910
- Whitney C. Huntington, B. S. (C. E.), Assistant in Civil Engineering, University of Colorado.....1910
- Joseph B. Morrill, B. S. (E. E.) 1910, Instructor in Electrical Engineering, University of Colorado.....1910
- David R. Jenkins, B. S. (E. E.) 1904, E. E. 1907, Instructor in Electrical Engineering, University of Colorado, 1905 to 1908, and Assistant Professor of Electrical Engineering, University of Colorado....1908 to date
- Harry J. Kesner, B. S. (C. E.) 1907, Instructor in Bridge Engineering, University of Minnesota, 1907 to 1909; Instructor in Civil Engineering, University of California1909 to date
- Fred H. Kroger, B. S. (E. E.) 1904, Instructor in Electrical Engineering, Cornell University.....1906 to date
- Harvey E. Murdock, B. S. (M. E.) 1906, M. E. 1908, Instructor in Theoretical and Applied Mechanics, University of Illinois.....1906 to date
- Guy W. Smith, B. S. (E. E.) 1908, M. S. 1910, Instructor in Engineering Mathematics, University of Colorado1909 to date

Siebelt L. Simmering, B. S. (M. E.) 1910, Instructor in Mechanical Engineering, University of Colorado	1910
Howard E. Phelps, B. S. (C. E.) 1907, Instructor in Civil Engineering, University of Pennsylvania.....	1908-1909
Floyd H. Millard, B. S. (C. E.) 1910, Research Assistant in Engineering, University of Illinois.....	1910
Clement C. Williams, (C. E.) 1909, Acting Professor of Civil Engineering, University of Colorado, 1909-1910, and Assistant Professor.....	1910
Alfred P. Poorman, C. E. 1909, Assistant Professor of Mechanics, Purdue University.....	1909 to date
George L. Sullivan (M. E.) 1910, Instructor in Mechanical Engineering, University of Colorado.....	1908 to date
Gerald H. Venneman, B. S. (M. E.), Instructor in Mechanical Engineering, University of Colorado.....	1907-1908

Graduates of the University of Colorado in Commercial Positions.

Most of the graduates of the Electrical Engineering Department secure immediately, upon graduation, positions with the General Electric Company, Schenectady, N. Y., the Westinghouse Manufacturing Company, Pittsburg, Pa., or with the Western Electric Company, Chicago, Ill. Electrical Engineering graduates also obtain positions in the signal departments of railroads, with power development companies, and in other commercial positions.

The graduates of the Civil Engineering Department have been very successful in securing positions with important bridge companies, in the bridge and building departments of railways, in the engineering departments of railways, with the U. S. government in the reclamation service and the geological service, in municipal and sanitary engineering positions, and with consulting engineers. The demand for Civil Engineering graduates is much greater than the supply, and the opportunities in this field are unexcelled.

The graduates of the Mechanical and Chemical Engineering

Departments find employment with railways, with manufacturing concerns, chemical works, beet sugar factories and in other commercial positions.

Many of the former graduates of the College of Engineering have now reached positions of responsibility and prominence in engineering operations, which fact together with the improved standards of instruction has materially advanced the standing of the institution.

Distribution of Students.

The two hundred and ninety-two engineering students in attendance in 1909-1910 were divided among the four departments as follows: Civil Engineering Department, 105; Electrical Engineering Department, 133; Mechanical Engineering Department, 35; Chemical Engineering Department, 19. The registration for 1910-1911 will show an increase.

Engineering Research in the University of Colorado.

The research work which has been completed, is now in progress, or will be carried on by the different departments when the necessary funds are available is as follows:

Civil Engineering Department.

Work Completed or in Progress.—The department has carried on investigations along the following lines, mostly in connection with thesis work.

1. Pumping for Irrigation.
2. The Comparative Value of Slag and Sandstone as a Concrete Aggregate.
3. Bond Stress of Steel and Concrete.
4. Adhesion of Cement Mortar to Brick.
5. Pressure of Wheat in Bins.
6. Tests of Colorado Building Stone.
7. The Study of Boulder, Colorado, Sewerage.
8. The Flow of Water in Irrigation Ditches.
9. Tests of Old Timber Stringers.
10. Tests of Reinforced Concrete Mine Timbers.

11. Tests of Steel in Sixteenth Street Viaduct, Denver, Colo.
12. Compilation of Data on Water Supplies in Colorado.
13. Compilation of Data on Roads.
14. Compilation of Data on Dams in Colorado.

Timber Testing Station.—The U. S. Department of Agriculture, Division of Forestry, in co-operation with the University has established a Timber Testing Station in connection with the laboratory of Applied Mechanics of the Civil Engineering Department. Within the past year similar laboratories at Purdue University, the University of California, the University of Oregon, and the University of Washington have been discontinued and a Wood Products Laboratory has been installed at the University of Wisconsin, Madison, Wisconsin. This makes the University of Colorado Timber Testing Station the only one in operation west of Madison, Wisconsin, and adds materially to the importance of its work.

In order to provide for the Timber Testing Station the equipment of the Applied Mechanics Laboratory was increased by the addition of a 200,000-lb. Riehle Beam and Column Testing Machine that is capable of testing a beam 16 feet or a column 8 feet long; a 30,000-lb. Olsen Tension Testing Machine for use in making standard compression and tension tests; a compressometer; a drying oven; a power planer and a power saw; and other necessary minor apparatus for making timber tests. This additional apparatus makes the equipment of the Applied Mechanics Laboratory equal to that of any of the timber testing laboratories in the country.

In addition to the Engineering Staff of the Civil Engineering Department, the Forest Service maintains at the laboratory an experienced timber testing engineer with two engineering assistants. All the facilities of the laboratory are available for the purpose of instruction and investigation by the department. Varied tests of many different kinds of timber are constantly in progress. The following tests have been completed during the past two years:

1. Tests of Telephone Poles, including comparisons of fire-killed lodge pole pine and Engleman spruce with standard western cedar.
2. Tests of Round Timbers, including comparison of six species of coal mine caps and props, 5½ inches in diameter by

6 feet and 8 feet long, tested dry and green for comparison; and round beams 16 feet long and 8 inches, 10 inches and 12 inches in diameter, of lodge pole pine, fire-killed and green.

3. Preparation of Panels of Different Kinds of Native Timbers.

4. Determination of Weight per Cubic Foot for Fence Posts for Routt National Forest.

5. Numerous tests to determine properties of timber.

These tests were conducted in accordance with the most approved methods and form a part of the work of the Forest Service covering the whole United States. The work which has been completed by the Station is only the beginning of work in the Rocky Mountain States, so that many years must elapse before the work of the Station will be completed.

Road Materials Testing Laboratory.—A Road Materials Testing Laboratory, equipped with apparatus to make all commercial and special tests of road materials, has been established in connection with the Applied Mechanics Laboratory of the Civil Engineering Department. This will make it possible to carry on tests of road building materials and make investigations of the best methods for the construction and maintenance of roads and bridges in the State. Practically nothing has been done in connection with materials for building roads in Colorado, and the results obtained in this laboratory will prove of material benefit to the State.

Work to be Undertaken.—In addition to the above the Civil Engineering Department should take up the following lines of investigation:

1. Irrigation Investigations.
2. Power Investigations.
3. Sanitary Survey in Co-operation with State Board of Health.
4. Commercial Tests.

Electrical Engineering Department.

Work Completed or in Progress.—The following lines of work have been carried on under the direction of the Department:

1. Tests of the Light Distribution, Efficiency and Length of Life of Incandescent Lamps.

2. Efficiency and Relative Values of Different Shades and Reflectors for Incandescent Lamps.
3. The Accuracy of Watt-Meters.
4. Tests of the Electric Conductivity of Concrete and the Electrolytic Corrosion of Steel Anchors.
5. The Circuit Determinations for Automatic Block Signals.
6. The Study of the Mercury Art Rectifier.
7. The Oscillograph.

Work to be Undertaken.—The Electrical Engineering Department should take up the following lines of investigation:

1. Electric Railway Tests.
2. Lightning Protection.
3. Commercial Tests.

Mechanical and Chemical Engineering Departments.

Work Completed or in Progress.—The Departments have done considerable work on the analysis of Colorado coals in connection with the tests of the relative values of different fuels.

Work to be Undertaken.—The analysis of Colorado coals should be continued and the following lines of investigation should be taken up:

1. Efficiency of Lignite Coals.
2. Storage of Lignite Coals.
3. Gas Engines.
4. Power Developments.
5. Transmission of Power.
6. The Analysis of Water for Domestic and Commercial Purposes.
7. Investigations of Colorado Oils as to Cost and Methods of Refining.
8. Investigation of Fords.
9. Study of Clays.

Summary.

Special attention is called to the following recommendations, most of which have been outlined in the preceding discussion:

New Building and Equipment.—The crowded condition of the present Engineering Building and the laboratories makes it essential that a new Engineering Building with adequate recitation rooms, drawing rooms, and laboratories be provided in the near

future. While the laboratory equipment has been very effective with small classes, the rapid increase in the size of the Junior and Senior classes and the wear and depreciation due to the students' use will make it necessary to add materially to the laboratory equipment if the present grade of instruction is to be maintained.

Graduate courses are now offered in the different Engineering Departments as described in the University catalogue. The following courses especially meet the needs of Colorado and additional facilities should be provided for this work:

- Power Plant Engineering.
- Gas Engine Design.
- Hydraulic Design.
- Irrigation Engineering Structures.
- Electric Power Plant Design.
- Fuel Analysis.
- Reinforced Concrete Construction.
- Mine Buildings and Mill Structures.
- Office Buildings.
- Electric Traction.

Provision should be made for the following lines of investigation in addition to the work now being done by the Timber Testing Station, the Road Materials Laboratory, the Civil, Electrical, and Mechanical laboratories, and Departments of Chemistry and Geology:

- Irrigation Investigations.
- Power Investigations.
- Sanitary Survey in Co-operation with the State Board of Health.
- Commercial Testing Laboratory.
- Test of Colorado Building Stones.
- Test of the Pressure of Grain in Bins.
- Tests of Reinforced Concrete.
- Tests of Incandescent Lamps.
- Tests of the Effect of Alkali on Concrete.
- Tests of the Accuracy of Watt-Meters.
- Railroad Signalling.
- Electric Railway Tests.
- Electrical Commercial Tests.
- Tests of Coals.

Tests of Lignite Coals.

Tests of Gas Engines.

Study of Clays in connection with the Manufacture of Cement, Lime and Brick.

Tests of Mine Timbers.

SCHOOL OF MEDICINE.

Faculty Changes.

New Appointments: Henry S. Denison, B. A., M. D., Instructor in Medicine, September, 1909; Carbon Gillaspie, M. D., Instructor in Anatomy, September, 1909; Oliver Lyons, M. D., Lecturer on Genito-Urinary Diseases, February, 1910; Samuel B. Childs, A. B., M. D., Professor of Anatomy, September, 1910; J. W. Ames, M. D., Instructor in Medicine, September, 1910.

Promotions: Clay E. Giffin, A. B., M. D., Assistant in Surgery, to be Instructor in Surgery, September, 1909; Alvin R. Peebles, M. D., Assistant Professor of Medicine, to be Professor of Medicine, January, 1910; Clough T. Burnett, M. D., Assistant Professor of Bacteriology, to be Professor of Bacteriology, January, 1910; Oscar M. Gilbert, M. D., Assistant Professor of Medicine, to be Professor of Medicine, January, 1910; Walter W. Reed, M. D., Instructor in Obstetrics, to be Assistant Professor of Obstetrics, September, 1910; Geo. E. Neuhaus, M. D., Lecturer on Psychiatry and Neurology, to be Assistant Professor of Psychiatry and Neurology, September, 1910.

Resignations: Carroll E. Edson, M. A., M. D., Professor of Medicine, September, 1910; Arthur L. Kennedy, M. D., Assistant Professor of Medicine, September, 1910.

The promotions and appointments were made as the result of

Attendance.

faithful and efficient service in the one case, or by reason of distinguished work in the various branches mentioned, in the other. The resignations were accepted with profound regret.

The attendance for the year 1909-1910 was 80, an increase of 60 per cent. over the previous year, and the highest in the history of the Department. For the present year the registration

to date numbers 95, not including students registered in the Denver and Gross College of Medicine, an increase of 18.7 per cent. over the attendance of last year. The first-year class, in spite of the increase from a high-school entrance requirement to the requirement of sixty college hours for entrance, numbers 16, a hopeful showing for the first year under the new rule.

Laboratory classes in anatomy, bacteriology, pathology, physiology and pharmacology, have been divided into sections, for lack of space to handle the entire class in our present quarters. The work of the teachers in these branches is thus greatly increased, while the effectiveness of the teaching is decreased on account of the separation of the laboratory courses from the didactic courses, with which they should run parallel.

Teaching Methods.

Happily the lower rate made for clinical patients at the Hospital has operated to increase steadily the number of patients available for teaching purposes. This change for the better has also been helped by the fact that patients are gradually learning that being in the Hospital as a clinical case involves no hardship or discomfort, but on the contrary the attention received from students and the greater attention received from members of the attending staff are distinct advantages. The clinical material available in medicine, surgery and obstetrics has been very satisfactory. The eye clinic has suffered during the past two years by its removal from the Hospital to the Dispensary. Clinical material in neurology, pediatrics, orthopedics, dermatology, genito-urinary and rectal surgery, etc., is, of course, less abundant, but this defect will be remedied if the third and fourth year classes are removed to Denver.

Steady progress has been made in the improvement of teaching methods, by bringing them more and more into harmony with the best modern practice. The schedule has been revised so as to give the students greater leisure, and opportunity for needed recreation, as well as for special reading or advanced laboratory work. Class work now stops at 4:20 p. m., with but two or three exceptions on single days. By careful rearranging of the curriculum also, a better articulation of the courses is being

steadily attained. Methods of administration are being improved so as to afford better, closer, and more constant supervision of the individual student.

These improvements have met with a most gratifying recognition on the part of medical educators throughout the country, and other schools are sending here, in steadily increasing numbers, students who, for one reason or another, are in need of the special advantages of the Colorado climate, and who, as, experience has shown, after graduation remain for the most part in Colorado as permanent residents of the State.

Publications.

Here follows a list of contributions and addresses by members of the Faculty during the past two years:

George H. Cattermole, M. D., Professor of Medicine:

"Diarrhoeal Diseases in Colorado." *Pediatrics*, March, 1909.

Frank E. Waxham, M. D., Professor of Rhinology and Laryngology:

"A Plea for the Free Distribution of Antitoxin in Colorado." *Colorado Medicine*, 1909.

"Intubation of the Larynx with Suggestions Regarding Anaphylaxis." *Colorado Medicine*, 1910.

"Diseases of the Accessory Sinuses Giving Rise to Ocular Symptoms." *Laryngoscope*, May, 1910.

"Some Interesting Cases: Tracheotomy Following an Intubation and Thrombosis of Sigmoid Sinus." *Denver Medical Times and Utah Medical Journal*, 1909.

"Bezold's Mastoiditis." *Denver Medical Times and Utah Medical Journal*, 1910.

Charles S. Elder, M. D., Professor of Surgery:

"The Scientific Method of William Harvey as Exhibited in His 'Discourse on the Motion of the Heart and Blood in Animals.'" Address before the Medical Society of the City and County of Denver, February 21, 1910.

"The Nature of Genital Prolapse in Women." Read before the Colorado State Medical Society, October 13, 1910.

James R. Arneill, B. A., M. D., Professor of Medicine:

"Malignant Endocarditis." Address before the Fort Collins Medical Society, 1909.

"A Report of Some Unusual Abdominal Cases, with Interesting and Instructive Diagnostic and Therapeutic Points." University of Colorado Medical Bulletin, 1910.

"Cancer of the Stomach, with a Report of Some Unusual Cases." Read before the Colorado State Medical Society, October 13, 1910.

Edward Jackson, M. A., M. D., Professor of Ophthalmology:

"Ophthalmic Year Book," Octavo, Illustrated, Vols. VI, p. 415, and VII., p. 393. In collaboration with Drs. G. E. de Schweinitz, T. B. Schneideman and William Zentmayer, of Philadelphia. Published by the Herrick Book & Stationery Co., Denver, Colo.

"Suggestions of the Pupil in General Disease." American Journal of Medical Science, October, 1908.

"The Teaching of Ocular Refraction." Ophthalmic Record, November, 1908.

"Scissors-Magnet Extraction of Iron from the Eyeball." Journal American Medical Association, June 19, 1909.

"Observations Concerning Glaucoma." American Journal Ophthalmology, 1909.

"Accuracy in the Measurement of Refraction." Annals of Ophthalmology, 1909.

"Ocular and Orbital Symptoms of Thrombosis of the Cavernous Sinus." Ophthalmology, V.

"Blood Pressure in Its Practical Relations to Ophthalmology." Ophthalmic Record, 1909, p. 460.

"Tests of Visual Acuity and Cards for the Subjective Correction of Ametropia." Transactions, Section on Ophthalmology. American Medical Association, 1910, p. 137.

"Standardizing of Test-Types and Records of Visual Acuity." Transactions American Ophthalmological Society, Vol. XII., Part II.

"Operations on the Extrinsic or Orbital Muscles." Chapter III., Part IV. "A System of Ophthalmic Operations."

Edited by Casey A. Wood, M. D., Cleveland Press, Chicago, Ill.

Richard W. Corwin, M. D., LL. D., Professor of Surgery:

"When and How to Treat Hernia in the Young." *Colorado Medicine*, March, 1909.

"What Are the Causes Leading to Railway Accidents, and What Remedies Can Be Suggested." Read before the New York and New England Association of Railway Surgeons, held at the Academy of Medicine, New York City, November 17-18, 1908. *International Journal of Surgery*, 1909.

"Negligence of Employe from Disease and Overwork—Its Relation to Accidents and Remedies." Meeting of the New York and New England Association of Railway Surgeons, November 16, 1909.

"False Traumatic Hernia." Read before the 39th Annual Convention, Colorado State Medical Society, September 14, 1909.

"Tuberculosis Sunday." Temple Emmanuel, Pueblo, April 24, 1910.

"The Other Kidney." *Railway Surgical Journal*, November, 1908.

"Suggestions Regarding Hospital Management and Construction." Eleventh Annual Conference, American Hospital Association, September 22, 1909.

"The Modern Model School-house." Pamphlet, 1909.

"Typhoid." Otero County Medical Society, March 25, 1910, La Junta, Colo.

"Pancreas." Pueblo County Medical Society, 1910.

Oscar M. Gilbert, M. D., Professor of Medicine:

"Myocardial vs. Endocardial Affections." *Colorado Medicine*, 1909.

"A Plea for a National Department of Public Health." Read before the University Scientific Society, March, 1909.

"Some of the Medical Aspects of Blood Pressure." *Colorado Medicine*, 1910.

"Prevention of Tuberculosis." Address delivered before the Colorado Society for the Prevention and Control of Tuberculosis, November, 1909, and published in the official organ of the Society, 1910.

"Bilateral Sarcoma of the Adrenals with Metastases to the Lung, Simulating Tuberculosis." Read before the Colorado State Medical Society, October 12, 1910.

Alvin R. Peebles, M. D., Professor of Medicine:

"Clinical Observations on Blood Stains." Journal American Medical Association, 1909.

Walter W. Reed, M. D., Assistant Professor of Obstetrics:

"The External Antipartum Examination." American Journal Obstetrics, No. 2, 1908.

"The Dicephalus Dibrachius, with Report of a Case." Just completed.

William A. Jolley, M. D., Instructor in Pharmacology:

"A Pharmacologic Study of the Drugs Used in Diseases of the Genito-Urinary Tract." Colorado Medicine, 1910.

Frank R. Spencer, B. A., M. D., Instructor in Laryngology and Rhinology:

"Stitch Scissors for Eye, Ear, Nose and Throat." Journal American Medical Association, 1909.

"Cerebellar Abscess of Otitic Origin, with Report of a Case.' Read before the Colorado State Medical Society, October 12, 1910.

Henry S. Denison, B. A., M. D., Instructor in Medicine:

"Amboceptors and Complement in Typhoid Sera." Johns Hopkins Hospital Bulletin, 1908.

"Note on Pathological Changes Found in the Embryo Pig and Its Membranes." Anatomical Record, 1908.

"Melano-Sarcoma." Read before the Denver City and County Medical Society, December, 1909.

J. W. Ames, M. D., Instructor in Medicine:

The following addresses:

"Pellagra."

"Management of Cholera Epidemics."

"Bubonic Plague." Denver, November, 1909.

"American Contributions to Tropical Medicine." Boulder, December, 1909.

"Medical and Social Economics in Cuba."

"Ellis Island and the Immigration Problem." Greeley, December, 1909.

"Address on Quarantine at the Fourth Annual Sanitary Congress of the American Republics." San Jose, Costa Rica, December, 1909.

The Constitutional Amendment and the Consolidation With the Denver and Gross School of Medicine.

The rapid strides in all branches of medical sciences are throwing a steadily increasing burden on medical education. Thirty years ago the raw and untrained youth could be taught all that it was then necessary for him to know of medical science, in one or two courses of lectures of six months each. Laboratory training, in the modern sense of the word, was all but unknown, and it cost little or nothing to maintain a medical school. But to-day, six years is all too short a time to lay the foundations of a medical education, and the development of laboratory methods has vastly increased the costliness of medical teaching. It is no longer possible to run a medical school on an income derived from students' fees. To attain this object, the fees would need to be so high as to exclude all but the wealthy from the study of medicine. Either generous endowment or state support is therefore rapidly becoming an absolute *sine qua non* of a medical college. This fact is abundantly testified by the widespread movement toward the absorption of medical schools dependent on fee income for their support by their stronger competitors, and the steadily increasing requirements enforced by various State Boards of Medical Examiners. Recent developments in Colorado are opening to the University an unexampled opportunity to create here a great center of medical education. It remains only to be seen whether the State will remain true to its general and generous policy in educational matters by providing means for such a school, for

the benefit of its youth seeking an education, and for the welfare of the whole people of the State.

The passage by the Legislature at its last regular session of the bill submitting to the voters the Constitutional Amendment permitting the teaching of all except the two first years of the medical course at Denver, is the first of the two most important events of the last biennial period. The second is the consolidation of the Denver and Gross Medical College with this Department, the contract for which was signed last spring by the Regents and the Board of Trustees of the Denver and Gross College. On January 1, 1911, the latter school becomes an integral part of this Department. The last obstacle to the passage of the Constitutional Amendment is thus removed, and a greatly enlarged field is opened to the Medical Department. The attainment of these objects, by consolidating medical education in Colorado under one head will enhance enormously the strength of medical education throughout the entire West. It will then remain only to perfect adjustments by which the abundant hospital facilities in Denver may be used to the fullest extent for teaching purposes. When this is accomplished, and facilities for laboratory study of cases, and for clinical research are provided, the Department will take its place in the very front rank of medical education.

State Laboratory of Hygiene.

Attention was called in the last biennial report to the advantages to be derived for the State at large from the establishment, in connection with the Department, of a Laboratory of Hygiene. Such laboratories have been established by many of our sister states, and have proved a potent factor for good in every instance. Such a laboratory would engage investigations such as the following:

1. Source and cause of epidemics in any part of the State, and the means of controlling same.
2. Publication and distribution of health bulletins from time to time, as occasion requires, for the benefit and guidance of the people.
3. Investigation of problems of health peculiar to this State.

4. Manufacture and free distribution of preventive vaccines and curative sera for smallpox, rabies, diphtheria, lockjaw, hog cholera, anthrax, black leg, etc.

At the same time such a laboratory could be made of great use as an adjunct to the present medical curriculum, by training medical students in methods employed in attacking various diseases by first hand experience, thus equipping them to be of correspondingly greater use in their several communities after graduation. An appropriation of about \$5,000.00 per year would suffice to initiate this work on a highly useful basis, and with provision for extension of the work as the means at hand would permit.

Immediate Needs.

As noted in the last report, the greatest single need of the Department at the present time is a suitable and dignified building. The present cramped, shabby and ill-arranged quarters of the School constitute a great handicap to its legitimate progress. The second-year class now has to be taken to another building at a distance from the Medical Building for lectures and recitations, where any apparatus needed for demonstrations cannot be used except as it is carried back and forth between the buildings. Rooms set apart for research workers have been gradually, and of necessity, converted to other uses, and, in a word, the proper and adequate teaching of the most important branches of the first two years is impossible, even with the added space to be made available by the removal of the last two years of the course to Denver. There is critical need of a building which should afford, in a seemly and dignified manner, two amphitheatres accommodating 150 students each, two or three smaller recitation rooms for section work, adequate and well arranged laboratories for teaching pathology, bacteriology, physiology, pharmacology, histology and embryology, besides research rooms, animal rooms, museum, toilet and reading rooms. To fail to provide such a building within the near future will be to fail in grasping the opportunities opened to us by the passage of the Constitutional Amendment, and to find ourselves top-heavy with a school well provided for in the last two years, but woefully deficient in the first and fundamental years. No visitor to the

school in its present habitat can fail to carry away any other than a most unfavorable impression.

SCHOOL OF LAW.

There have been to the date of this report 110 registrations in the Law School for the academic year 1910-11, an increase over the two previous years.

The methods of instruction remain practically the same—succinctly described as combinations of the case and text-book system for the lower classes and the study of cases in the upper classes, with lectures upon special topics by eminent practitioners, followed by examinations in each instance.

No changes have been made in the faculty or lecturers, with the exception that Mr. John E. Robinson of Denver, an acknowledged authority upon the law of bankruptcy, has taken the place of Mr. Wm. B. Harrison, as lecturer upon that subject.

We refer with satisfaction to the results of the examinations held in Denver in June last, by the State Board of Bar Examiners for admission to the bar of Colorado. There were 58 candidates, distributed among the various institutions of the country, the Law School connected with the University of Colorado furnishing 17 of the number, or practically 30 per cent. There were 12 failures reported, of which, it is noted the Colorado School of Law furnished none, while the highest mark of all the applicants was attained by a student of that School, who graduated June, 1910.

The general catalogue of the University for this year and the last annual Law School announcement contain the statement that beginning September, 1912, two years of College work will be required for admission to the Law School. This departure from the requirements for admission which have obtained in the past, and which have been based upon simply a high-school education or its equivalent, the Regents believe, is in accord with the more enlightened views respecting legal education. Ample notice is given of the change, and the altered standards, it is believed, will in the end result in better lawyers, while not seriously lessening the opportunities of the youth of the State for the varied and responsible service which is and should be demanded of the legal profession.

The need of the Law School for a suitable building, referred to in the last report has been amply met by the munificence of a citizen of the State, and the School for about a year past has been occupying the beautiful structure upon the campus designed for its special use, and sufficient for its needs for many years, the gift of Senator Simon Guggenheim. Appropriate dedication exercises were held upon completion and presentation of the building November 24 of last year. Here follows the dedication programme:

1. MusicBand
2. Address.....Hon. S. R. Fitzgarrald, Lieutenant
Governor of Colorado
3. Presentation of Building.....Senator Simon Guggenheim
4. Acceptance for Regents.....President James H. Baker
5. Acceptance for Law School.....Dean John D. Fleming
6. Address.....Chief Justice Robert W. Steele
7. MusicBand
8. Inspection of Building by Public.

An extension of the library facilities of the School remains at present the most pressing need. A generous appropriation for the filling up of incomplete sets of law reports, the continuations of the current reports, both State and Federal, and for the purchase of the latest approved text-books and treatises, is required.

The School continues a member of the Association of American Law Schools, an organization of the more prominent law schools of the country, formed in 1890, for the purpose of elevating and maintaining the standards of the legal education in all the States. The reports of their meetings, held each year in conjunction with the meetings of the American Bar Association, of which the Dean of the School is the Vice President for Colorado, furnish valuable data upon the subject of legal education generally.

ORATORY AND DEBATE.

Oratorical and debating contests are now recognized as forming an important branch of the student activities. The exercises and contests among the literary and debating societies

and other student organizations are conducted under the management of the different memberships; all other oratorical and debating contests are held under the management of the Debating Board of the Associated Students, this board consisting of the three members of the University Senate Committee on Oratory and Debate, and three student members. In addition to the Annual Prize Oratorical Contest and the Inter-Class Debate for the Griffin Prize, debates were held in 1908-9 with the Universities of Kansas, Missouri, Texas and Utah; and in 1909-10 with the Universities of Kansas and Texas. The decrease in the number of inter-university debates last year was due to the fact that it was necessary to omit the contest with the University of Utah on account of the expense, and that afterward the University of Missouri failed to fulfill its engagement.

The organization in 1908 of a class in debating under an instructor of the English Department, chosen especially for his fitness to lead in such work, has resulted in increased interest among the students in oratory and debate, and a marked improvement is observable in the public contests. At present, however, instruction can be given to only a limited number. As soon as funds can be provided for the purpose, all freshman students, both men and women, should be given instruction in what might be termed "oral English," so that they may gain thorough practice in correct habits of speech and in the ability to think on their feet and to express their thoughts clearly and readily. Such instruction, while it should be designed primarily to improve the general powers of expression in the ordinary circumstances of life, will stimulate the interest of a larger number in public speaking, and will give them the foundation upon which they may build in improving further their powers in oratory and debate.

PHYSICAL CULTURE AND ATHLETICS.

Systematic training in physical culture is given in formal gymnasium classes, and in the main branches of in-door and out-door sports. All these are under the competent supervision of the Director of Athletics, with the aid of two assistants in the gymnasium and a graduate medical attendant for women.

During the football season a coach and an assistant coach are employed for this sport.

For the most part the athletic training is on a voluntary basis, but a formal course in physical culture is required of the freshman class in the College of Liberal Arts. It is as yet impracticable to require gymnasium work of other classes because of the limited facilities of the present gymnasium, which is entirely too small to meet the needs of our rapidly growing student body. A large well equipped gymnasium is one of the crying needs of the University.

Fortunately the climate is such as to make out-of-door recreation and games agreeable during most of the year. Adequate training and coaching are given to football, baseball, track athletics, cross-country running, basketball; and this spring special attention is to be given to tennis.

It is the purpose of the University to stimulate interest in the greatest possible variety of wholesome games and sports. The policy of developing highly specialized inter-collegiate teams is subordinated to that of providing suitable forms of corrective and upbuilding exercise for all members of the student body.

The present athletic field, being inadequate for our purposes, the University has recently acquired twelve acres north and east of the campus, and just across Boulder Creek. To this field—to be known as Stratton Field—additions may be made by later purchase. This new playground has the advantage of being not far from the center of the campus; it is beautifully situated along the shady river bank, and will be large enough to give ample room for all the various College sports.

Athletics—especially inter-collegiate athletics—are placed on a more stable financial foundation under the organization of the Associated Students of the University. A fee of \$5.00, for the support of all student interests and activities, which the students imposed upon themselves by an almost unanimous vote, is now sanctioned by the Regents, and is collected from each student at the beginning of the year.

General supervision and direction of athletics is vested in the Athletic Board, composed of three members of the Faculty, appointed by the President of the University, and three student members, who are officials of the Associated Students. This Board is responsible in all things to the University Senate.

ASSOCIATED STUDENTS.

The Associated Students of the University of Colorado (A. S. U. C.) is an organization whose membership includes every student registered at the University. It came into being through the adoption, by the students, of a Constitution, whose preamble recites its purpose, "to form a more efficient government for the conducting and determining of all matters of general student concern."

The need for "a more efficient government" was evident, because the existing organization known as the "Combined Student Body," had no definite powers, and was simply a medium for conducting general mass meetings. There existed, also, a separate Athletic Association, an Oratorical and Debating Association, a distinct Constitution for the Silver and Gold, and a separate Tennis Association. There was no centralization of power and responsibility, and no consistent student governmental or financial policy.

A Convention of Students, called by the President of the Combined Student Body, authorized the drawing of a new Constitution, January 14, 1908. The Constitution was prepared, referred to the Convention, adopted, and its adoption finally ratified by a mass meeting of students, held on May 26, 1908, by a vote of 517 to 5. Later it was approved and accepted by the Faculty Senate and the Board of Regents. The new Constitution went into effect at the opening of the succeeding school term, September, 1909.

It provides four legislative bodies for the government of all matters of general student concern: The Commission, the Athletic Board, the Debating Board and the General Board.

The Commission is composed of one Faculty member, appointed by the President of the University, and eight student members, elected at large by the students—the President of the Associated Students, the Vice President of the Associated Students, the Yellmaster and four Commissioners. This body legislates on student tradition, the general welfare of the A. S. U. C., the student publications, musical organizations and all other student interests, except Athletics and Debating.

The Athletic Board is composed of three Faculty members, appointed by the President of the University, and three student

members—the President of the Associated Students and two others appointed by him from the Commission. It formulates the athletic policy of the University and makes all rules and regulations governing athletics in all of its forms.

The Debating Board is likewise composed of three Faculty members, appointed by the President of the University, and three students—the President of the Associated Students, and two others appointed by him from the Commission. All matters pertaining to intercollegiate debates and oratorical contests are decided by this Board, which also makes rules concerning the selection of teams and questions.

The General Board is composed of the members of the Commission, Athletic Board and Debating Board. It selects the General Manager, who has charge of all of the finances and property of the A. S. U. C., and who schedules all games, contests, concerts and events, and is the general executive.

One of the most important features of the new Constitution is the provision for a five-dollar fee to be paid by each student at the time he registers. This fee entitles the student to a coupon ticket book whose coupons admit him, without further charge, to all football, baseball and basketball games, to all track meets, all debates, the concert of the University quartettes, the band concert, and, in addition to these events, gives him the term's subscription to the Silver and Gold, and the privilege of membership, voting and holding office in the A. S. U. C.

When the Constitution first went into effect, the fee was four dollars, instead of five, and was optional. The students petitioned the Board of Regents to make it compulsory, and the Regents took such action at their regular meeting in April, 1910. The fee is now collected as a part of the regular registration system of fees, and gives the A. S. U. C. a definite fund on which to finance all of the student activities.

The Constitution contains other interesting features. Its operation, up to the present time, has been very satisfactory. The Commission has enacted needed legislation concerning discipline and certain University traditions, and is considering many other questions of a broader nature. In all its affairs the organization of Associated Students is subject to the general rules of the Regents and the Faculty Senate.

RELATION TO THE HIGH SCHOOLS.

During the past two years the problem of mutually helpful relationship with the High Schools of the State has absorbed much of the attention of the Committee on High Schools and High-School Conference. This committee, as now constituted, consists of seven members, representing those departments of the University most directly in touch with the High-School courses of study.

The High-School Conference, called by Principal William H. Smiley and Professor Ira M. De Long, the officers appointed at the Conference held at the University in 1903, met at the University of Colorado January 1 and 2, 1909. Principal William H. Smiley presided the first day and Superintendent A. B. Copeland the second day. There was a large representation of the High Schools of the State and many important matters were fully discussed, resolutions were passed expressing the sense of the Conference, and plans were formulated for the more complete organization of the Conference and arranging for future meetings. The resolutions passed at the meetings and the committees appointed follow:

Number of Units.

Resolved, That each High School should be at liberty to arrange the contents of four to six units of its course to the end of best subserving local needs and that the University should accept for entrance such units of this work as have been well organized and well taught even though the subject-matter is not traditional.

Standardization of Units.

Resolved, That an attempt should be made to secure throughout the State a practically uniform content in the usual High-School courses: English, Mathematics, Ancient and Modern Languages, History, Physics, Chemistry and Biology, and that committees should be appointed to prepare syllabi for these courses.

Group Electives in High School.

Resolved, That atomistic election in the High School should

be discouraged, and that the matter of grouping should receive more careful attention.

The Content of High-School Science.

Resolved, that the qualitative side of High-School science should be more strongly emphasized than at present; that more attention should be given to facts pertinent to living rather than so exclusively to conventional experiments and detailed methods; that it should serve to eliminate superstitions and folk-way notions from the student's mind; and that it should much more than now introduce to the universe and fund interests.

The Unit System.

Whereas, The various studies of the High-School curriculum differ in respect to the purpose for which they are taught and to their functions, and

Whereas, The usual practice in High Schools now is to teach all subjects without any differentiation in method with respect to function and purpose, be it

Resolved, That it is the sense of this body that such a differentiation in method should be made; that certain studies should be taught intensively to the end of producing definite powers and abilities; and that content subjects should not be taught with the methods suitable to formal subjects, but should be taught to the end of inspiration, producing equivalent results with a small expenditure of time and energy; and that this may be done, be it further

Resolved, That it is the sense of this body that the present unit system, with its insistence upon mathematical measurement of inspirational result, and its tendency toward mechanization of method, is unsatisfactory, and that some modification is desirable.

Units.

Resolved, That 15 units are not too much for admission requirements.

Resolved, That fractional units of 2-5, 1-2, 3-5 and 4-5 in some subjects should be admissible.

The One and Two-Teacher High School.

Resolved, That, while the equipment of the teachers in these schools should not be inferior to that of teachers in larger schools, there should not be attempted more than five units in three subjects in the one-teacher High School, nor more than ten units in six subjects in the two-teacher school.

High-School Athletics.

Resolved, That the one-year rule in inter-collegiate contests should apply to freshmen as well as higher class students;

That High Schools should encourage, by the employment of physical directors or by the attention of teachers, all students to take part in athletic games and contests in the home town;

That classification for athletic purposes should be upon the physical basis with due regard to scholarship.

Resolved, That a committee of five be appointed to draw up uniform rules to govern all inter-scholastic athletic relations for the State of Colorado; that this committee submit their report to the respective schools for approval or suggestions; and that the report be finally considered at the next High-School Conference.

High School and University Relations. Permanent Organization.

Resolved, That the relations of the High School and the University should be more intimate and reciprocal, since both institutions deal in part with the same problems; that there should be closer co-operation between the various University departments and the corresponding departments in the High School; that semester reports of freshmen's standing be sent to the student's preparatory school; and finally, that there should be a committee selected to arrange a program for a second High-School Conference and to submit a plan for permanent organization.

Committee on Organization.

Frank E. Thompson.

Vivian A. C. Henmon.

William T. Fletcher.

Charles E. Carter.

Committee on Athletics.

William H. Smiley.

George Norlin.

H. P. Shepherd.

F. H. Merten.

George F. Speiser.

Since this meeting eight special committees, consisting of College and High-School men, have been appointed to consider carefully values, aims, methods and sources of all the High-School subjects. These committees have all done some work, some have done much, and all are now formulating recommendations touching aims, methods and courses of study for presentation to the next Conference, which will meet November 25 and 26, 1910. It is further planned to assemble these various recommendations and print them as a High-School manual for Colorado. It will be the work of the Conference after this to revise and improve this manual from year to year. The plan seems to afford a means of bringing College and High-School men together on many of their points of apparent difference.

The accredited list has been somewhat revised during the past year. Some schools have been added and two have been dropped. Fifty-six schools are now accredited and ten to fifteen more are nearly up to the minimum standard. The accrediting scheme seems to work well in the matter of maintaining and raising standards.

A larger number of the High-School teachers of the State are now University of Colorado graduates. Of those who have taken places during the past two years, practically all have made good records and have been promoted either in responsibility or salary or both.

BUILDINGS AND GROUNDS.

The following are the improvements made during this biennial period:

- (1) Heating, Lighting and Power Plant, including 1,700 feet of tunnel, boilers, machinery, pipes, wires, etc.; completed May, 1910.
- (2) Two wings added to the Hale Science Building; completed May, 1910.
- (3) West Wing of a Science and

Museum Building; nearly ready for roof October 1. Total cost approximately \$176,000.

Simon Guggenheim Law Building, gift of Senator Guggenheim, dedicated November 24, 1909; cost about \$55,000.

Macky Auditorium, bequest of Andrew J. Macky, under construction; payments to October 1, \$73,704.33; cost when completed about \$290,000.

"Stratton Field," twelve acres, purchased from the "Stratton Fund," at a cost of \$9,350.00. It is situated northeast from the campus, north of Boulder Creek. It will be devoted in the near future to athletics.

Refitting Cottage 1 as a Woman's Building: Headquarters for Dean of Women, Woman's League, Young Women's Christian Association.

Grading and parking along Broadway; extending walks; small addition to training quarters; enclosure adjoining Woman's Building; enclosure adjoining Engineering Building.

Changes in quadrangle: removing driveway from quadrangle; widening walk to eight feet; extending minor quadrangle to University Station; replanting and adding to rows of elms on plan made by the Landscape Architect.

NEEDS.

The following are the most important needs of the University:

- (1) A reasonable increase in salaries of all instructors; additional instructors. See pages 6, 7.
- (2) Increase in facilities for experiment and research. See pages 6, 18, 35, 47-48, 60.
- (3) Developing a Graduate School.
- (4) Placing the Medical School on a solid foundation. See pages 47, 48.
- (5) Buildings: Medical Building, the Center and East Wing of the Science and Museum Building, Women's Building, Main Building, Gymnasium, completion of Library, addition to Shops Building.
- (6) Improvements on Grounds.

Items 1, 2, 3 and 4 call emphatically for a larger income. In all justice provision must be made for living salaries for pro-

fessors and instructors. The teaching force, especially in the College of Liberal Arts and the Graduate School should be increased thirty-three per cent. The Graduate School has no definite support and is maintained almost as an extra voluntary service on the part of the Faculty. The Graduate School is rapidly becoming the distinctive feature of a true University and Colorado is to be one of the great centers of the United States for a University of first standing. The union of the Denver and Gross College of Medicine with the University of Colorado School of Medicine is a move that insures a great medical school for this entire Rocky Mountain region. Medical education today must be supported either by a great private foundation, or by the State. The demands of the science and its importance to the people, but recently fully understood, make unnecessary any apology for asking adequate support for the Colorado School of Medicine.

In the past two years some of the building needs have been met, but in addition the buildings enumerated above are necessary for the immediate work of the University. The importance of these buildings was urged upon the Legislature six years ago.

The average annual running expenses during the past two years (aside from \$12,892.46 paid out of the General Fund for new buildings) was.....	\$212,017.76
The average income, general funds, was.....	203,097.58
The deficit was covered by transferring to the General Fund:	
From Permanent Land Fund.....	\$24,044.29
Balance of Stratton Fund.....	3,406.78 \$ 27,451.07

These are the conditions of extreme economy under which the deficit occurred:

1. Underpaid instructors.
2. Inadequate teaching force.
3. No appropriations last year to the departments for equipment.
4. No special fund for the Graduate School.
5. No addition for the development of the Medical School.

When we consider that this extreme economy can no longer be employed, that there has been an increase of about twenty-

five per cent. in students in two years, that the University must have funds to meet all urgent needs for development, that there is no longer a fund to draw upon in emergency, it is evident that there must be a substantial increase of regular income in the next biennial period.

GIFTS.

Civil Engineering Department.

Adamant Brick Co., Boulder, Colo., brick for tests.....	\$ 3.00
Bonnot Company, Canton, Ohio, one two-jar grinding machine	100.00
Bonnot Company, specimens of paving and building brick	3.00
Cook Well Co., St. Louis, Mo., two sections of well strainers	3.00
Goulds Mfg. Co., Seneca Falls, N. Y., one well point....	8.00
Ideal Cement Co., Portland, Colo., two barrels cement..	4.00
United States Portland Cement Co., Concrete, Colo., one barrel cement	2.00

Electrical Engineering.

Allis-Chalmers Co., Milwaukee, Wis., transformer 4 k. w..	\$ 50.00
Crouse-Hinds Co., Syracuse, N. Y., sample board condulets	2.50
Electric Storage Battery Co., Philadelphia, Pa., sample board storage battery parts.....	5.00
Fort Wayne Electric Works, Fort Wayne, Ind., sample board transformer parts	2.00
General Electric Co., Schenectady, N. Y., sample board cabinet panel fittings.....	2.50
Gould Storage Battery Co., New York, N. Y., storage battery, 80 amp. hr.....	10.50
Hall & Crawford, Boulder, Colo., sample set high tension insulators	7.00
Hall & Crawford, Boulder, Colo., chemical rectifier....	5.00
Hendrie & Bolthoff Mfg. & Supply Co., Denver, Colo., integrating wattmeter (Wagner).....	25.00
H. W. Johns-Manville Co., New York, N. Y., switchboard panel, asbestos wood	7.00

Moloney Electric Co., St. Louis, Mo., transformer, 4 k. w.	\$ 50.00
National Carbon Co., Cleveland, O., sample board carbon products	10.00
Pittsburg Transformer Co., Pittsburg, Pa., auto-transformer	25.00
Standard Electric Accumulator Co., New York, N. Y., storage battery, 80 amp. hr.....	9.00
Westinghouse Electric & Mfg. Co., Pittsburg., Pa., framed pictures: single phase motor car, D. & I. Ry. Co.; 225 h. p. single phase railway motor; 1600 k. w. rotary converter; 15 car passenger train.....	12.00
Westinghouse Storage Battery Co., Boonton, N. J., storage battery, 96 amp. hr.....	10.00

Mechanical Engineering.

Morse Machinery Co., Denver, Colo., 18-inch American centrifugal pump	\$ 60.00
Pictures and drawings.....	25.00

Law.

Charles M. Campbell, Boulder, Colo., a number of digests	\$ 10.00
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Economics.

Thirty volumes of statutes donated by various States..	\$ 30.00
Constitution and legislative manual of each State.....	50.00

Geology.

H. A. Aurand, Denver, Colo., vivianite and silver ore from Leadville, cassiterite concentrates from Black Hills, calcite crystals, crystal pyrite from Salida, feldspar crystals from Pike's Peak, pebbles from Duluth, Minn., specimens of gold, tin, lead and zinc and rock-making minerals.....	\$ 18.00
Robert N. Bell, Weiser, Idaho, infusorial earth.....	1.00
Boulder Club, Boulder, Colo., ores and minerals.....	4.00

Ivan S. Crawford, Nederland, Colo., two specimens muscovite	\$.25
R. H. Cressingham, Denver, Colo., specimen serpentine, asbestos .....	.50
A. L. Dierstein, Denver, Colo., silver and lead ores from Leadville	3.00
Stanley A. Easton, Kellogg, Idaho, lead ores and structural specimens	20.00
R. Evert, Bonanza, Colo., copper minerals, Rawley Mine .....	.50
J. P. Flynn, Aspen, Colo., specimens silver from Aspen, Lake City and Rico	12.00
R. D. George, Boulder, Colo., lead mineral from Idaho..	25.00
E. M. Green, Nederland, Colo., specimen scheelite from Randsburg District, Cal.....	.50
William J. King, Villa Grove, Colo., specimen covellite, specimen enargite, five specimens copper from Ouray District, specimen copper mineral, two specimens turquoise from Old Mexico, obsidian pebbles from Salida	11.25
Carl Knoettge, Idaho Springs, Colo., rhodochrosite from Idaho Springs .....	.50
E. B. Lynch, Leadville, Colo., specimen native copper, malachite, chrysocolla, and melaconite from Ibex Mine, Leadville	2.00
H. R. Mosley, Newman, Colo., two specimens pyritohedrons of pyrite	1.00
K. G. Nesmith, Central City, Colo., specimen pitchblende from Kirk Mine, Gilpin County.....	2.50
F. F. Nickell, Sinks Grove, W. Va., specimen tetrahedrite from Cripple Creek .....	.50
E. C. Regnier, Boulder, Colo., specimen tungsten.....	1.50
F. Richter, Ouray, Colo., specimen gray copper, gold and silver	1.00
A. C. Smith, Golden, Colo., two specimens roscoelite, Sawpit, Colo.	1.00
C. C. Smith, Denver, Colo., specimen calaverite from Cripple Creek	8.00
J. F. Sundbye, Salida, Colo., four specimens zinc mineral, four specimens zinc	6.00

Harold D. Thompson, Cripple Creek, Colo., native silver, Boulder County	\$ 12.00
Dr. E. B. Trovillion, Boulder, Colo., specimen native gold in conglomerate from Transvaal.....	7.00
United Oil Co., Boulder, Colo., through M. T. Rathvon, crude and refined oil and oil products.....	10.00
H. E. Vernia, Cripple Creek, Colo., five specimens calaverite from Cripple Creek.....	8.00
Western Elaterite Co., Denver, Colo., two specimens elaterite	2.00
F. E. Wheeler, Cripple Creek, specimen wulfenite, Old Mexico	10.00
Charles H. Wing, Boston, Mass., specimen samarskite from Mitchell County, N. C.....	5.00
F. H. Wolcott, Boulder, Colo., specimen vanadinite from Magdalena Mountains, N. M.....	2.00
P. G. Worcester, Boulder, Colo., mineral specimens from Vermont	8.00

Philosophy.

Madam La Forgue, Paris, France, old Chinese porcelain plate from Chateau of Comte de Salmard, specimen of Strasburg faience, plate from service of Comte de Provence (Charles X.), Chateau de Salmard.

Physics.

American Book Co., New York, N. Y., Laboratory Manual of Physics—Chester, Dean, Timmerman.....	\$.80
Ginn & Co., Boston, Mass., a First Course in Physics (Millikan & Gale).....	1.25
D. C. Heath & Co., Boston, Mass. A New Course in Physics (Lineborger) .....	.80
Oliver C. Lester, Boulder, Colo., Science, back volumes to 1907 and current numbers; Physical Review, back volumes to 1907 and current numbers; School Science and Mathematics, current numbers; Bulletin of the American Mathematical Society from 1906 and current numbers	55.00

Macmillan & Co., New York, N. Y., Elements of Electricity and Magnetism (Franklin and MacNutt).....\$ 2.50

Museum.

Dr. H. W. Allen, Boulder, Colo., set of deer antlers....
 D. M. Andrews, Boulder, Colo., mollusks and fossils....
 E. L. Aurand, Denver, Colo., fossils and archæological material
 J. P. Beatty, Newton, Iowa, mollusks.....
 William S. Bellman, Boulder, Colo., bird.....
 Mrs. George Bennett, Denver, Colo., bird.....
 E. Bethel, Longmont, Colo., mollusks.....
 N. DeWitt Betts, Boulder, Colo., birds and mammals..
 John J. Blanchard, Boulder, Colo., birds and mammals...
 William Brackett, Boulder, Colo., bat.....
 L. C. Bragg, Fort Collins, Colo., mollusks.....
 T. D. A. Cockerell, Boulder, Colo., mollusks.....
 James Cowie, Boulder, Colo., bird.....
 Albert Dakan, Longmont, Colo., fossils.....
 Terry Duce, Boulder, Colo., fossils and mammals.....
 Egyptian Government, through British Museum, fine collection of Egyptian fishes.....
 Dr. Carl H. Eigenmann, Bloomington, Ind., fishes from British Guiana
 Frank Goddard, Goldhill, Colo., mammals.....
 R. D. Goss, Glendale, Calif., mollusks.....
 Ernest Greenman, Boulder, Colo., fossils.....
 Mrs. Louise Henderson, Los Angeles, Calif., mollusks and crustaceans
 Norman E. Hinds, Denver, Colo., fossils.....
 H. W. Hyde, Boulder, Colo., mounted peacock.....
 H. S. Kittle, Santa Ana, Calif., mollusks.....
 Joseph Klemme, Boulder, Colo., birds.....
 Mrs. Carrie Lang, Los Angeles, Calif., mollusks.....
 Harvey R. Markman, Montclair, Colo., mollusks and mammals
 C. J. Marvin, Denver, Colo., fossils.....
 Allen McArthur, Boulder, Colo., bird.....
 William McArthur, Boulder, Colo., bird.....

Thomas A. McBeth, Springfield, Ohio, fossils.....	
Mrs. Lucy Price McIntyre, Cynwyd, Pa., herbarium specimens	
Irvin McKeuren, Boulder County, Colo., bat.....	
Burnham Prince, Boulder County, Colo., bat.....	
J. L. Riland, Meeker, Colo., minerals, fossils and archaeological material	
Frank Rohwer, and Joe Rowland, Boulder, Colo., turtle..	
Willard Rusk, Boulder, Colo., fossil leaves, reptile bones, etc.....	
D. W. Spangler, Longmont, Colo., fossils and mammal...	
Dr. Frank R. Spencer, Boulder, Colo., deer.....	
Frank Springer, Las Vegas, N. M., fine collection of fossil crinoids	
Sidney Starcey, Boulder, Colo., reptile.....	
William Thorn, Lyons, Colo., fossil amphibian footprint..	
O. H. Wangelin, Boulder, Colo., fossil and recent mollusks	
E. R. Warren, Colorado Springs, Colo., amphibians, etc..	
A. E. Wilbur, Los Angeles, Calif., mollusks.....	

Value of above donations.....\$ 465.00

Library.

Library Gifts:

	Books.	Pamp.	Maps.
Ayer, Prof. Charles C.....	26		
Baker, President James H.....	49	72	
Canada Geological Survey.....	8	20	43
Carnegie Institute of Washington.	35	7	
Carstens, Miss Ruby.....	7		
Cockerell, Prof. T. D. A.....		82	
Colorado State Reports.....	78	21	
Coman, Mrs. L. Z.....	48		
Edson, Dr. Carrol E.....	34		
Fleming, Dean J. D.....	2		
Fulton, Mrs. H. & Sloan, Mrs. C. F.	107		
George, Prof. R. D.....	11		
Guggenheim, Senator Simon.....	4		
Hagen, Fred E.....	3		

	Books.	Pamp.	Maps.
Harlow, Dr. W. P.....	15	2	
Hunter, Dr. E. W.....		1	
Kearns, J. W.....	7		
Leshner, Arthur L.....	5		
Lester, Prof. O. C.....		6	
Lobb, John D.....	19		
Maine—Official Reports	18	7	
New York Educational Dept.....	122	24	
Office	20	251	
Ohio Arch. and Hist. Society....	17		
Perley, Col. H. A.....	110	15	
Phillips, Prof. John B.....	1	9	
Raymond, G. L.....	9		
Rippon, Miss Mary.....	12		
Rohwer, S. A.....		19	
Rucker, Cong. A. W.....		5	
Smith, A. C.....	5		
Smith, Miss Edna.....	5		
Teller, Henry	338		
U. S. Miscellaneous Publications.	791	4,648	38
University and College Catalogues, Etc.		1,409	
University of Chicago.....		61	
University of Colorado, College of Education, 1909.....	62		
University of Colorado, Students in History, 1910.....	33		
University of Colorado, theses....	148	33	
University of Michigan.....	8	39	
University of Pennsylvania, theses		34	
Willard, Prof. James F.....	112	1	
Miscellaneous	1,029	1,680	43
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Total Library Gifts.....	3,300	8,449	124
			<hr/>
Total gifts	\$5,609.85		

Summary.

Gifts previous to 1896.....\$27,207.00

Gifts, 1896-1898	\$11,556.00
Gifts, 1898-1900	7,042.00
Gifts, 1900-1902	756.00
Gifts, 1902-1904	1,949.00
Gifts, 1904-1906	7,123.75
Gifts, 1906-1908	2,980.50
Gifts, 1908-1910*	5,609.85
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Total	\$64,224.10

*Note—These should be added: Simon Guggenheim Law Building, dedicated November 24, 1909, \$51,000; Macky Auditorium (under construction, see p. 83).

REPORTS SUBMITTED.

We submit herewith the Pay Roll of the University, Secretary's Fee Report, Report on Permanent Fund, Report on University Lands, Report of State Auditor, Treasurer's Report, Treasurer's Report on Building Fund, Secretary's Report on Building Fund, Report on Macky Bequest, Secretary's Report, Librarian's Report, Inventory of Property.

Respectfully submitted,

HAROLD D. THOMPSON,
 THOMAS D. BAIRD,
 CHARLES R. DUDLEY,
 JOSEPH C. BELL,
 RALPH TALBOT,
 ETHELBERT B. ADAMS,

Board of Regents.

JAMES H. BAKER,

President.

FRANK H. WOLCOTT,
 Secretary.

APPENDIX.

PAY-ROLL OF THE STATE UNIVERSITY (Annual).

Administration.

James H. Baker, M. A., LL. D., President.....	\$ 5,000.00
Frank H. Wolcott, B. S., Secretary Board of Regents..	1,500.00
Fred E. Hagen, B. A., Secretary and Registrar.....	1,500.00
Katharine Kalene, Stenographer.....	720.00
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Gertrude H. Collins, Stenographer.....	480.00
Dean Worcester, Employment Bureau.....	300.00
Bertha Hunting, B. A., Students' Aid.....	200.00
V. May Smith, Faculty Stenographer.....	450.00
Additional clerical help in Registrar's Office.....	294.00
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	\$10,984.00

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J. Raymond Brackett, Ph. D., Dean of the Graduate School; Professor of Comparative and English Lit- erature.	2,500.00
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Charles C. Ayer, Ph. D., Professor of Romance Lan- guages.	2,500.00
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George Norlin, Ph. D., Professor of Greek.....	2,500.00
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Mildred Peck, Attendance Secretary.....	180.00
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Inez Kennison, Clerk College of Education.....	180.00

\$61,565.00

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Clement C. Williams, C. E., Assistant Professor of Civil Engineering	1,600.00

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Ollison Craig, B. S. (M. E.), Instructor in Mechanical Engineering.	800.00
Harland C. Woods, B. S. (C. E.), Instructor in Engineering Drawing	1,100.00
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Irma Lindsley, Dean's Secretary.	240.00
Additional clerical work.	200.00
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	\$ 18,340.00

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John M. Foster, M. D., Professor of Otology.....		25.00
Edward Jackson, M. A., M. D., Professor of Ophthalmology.....		25.00
Edward F. Dean, M. D., Professor of Anatomy.....		600.00
Ross C. Whitman, B. A., M. D., Secretary; Professor of Pathology		2,000.00
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Clough T. Burnett, M. D., Professor of Bacteriology....		800.00
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Twelve Nurses	1,152.00
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\$ 3,972.00

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Edwin Van Cise, Professor of Law.....	250.00
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Lucius M. Cuthbert, M. A., LL. B., Lecturer on Roman Law.	
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Charles D. Hayt, Lecturer on Law of Taxation.	
Caesar A. Roberts, M. A., Lecturer on Colorado Civil Code.	
Willard J. White, M. A., M. D., Lecturer on Medical Jurisprudence.	
Ernest L. Williams, LL. B., Lecturer on Appellate Procedure.	
James W. McCreery, Lecturer on Law of Irrigation and Water Rights.	
John E. Robinson, Lecturer on Bankruptcy.	
William B. Waldo, Law Librarian.....	150.00
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Eugene A. Bond, Assistant Law Librarian.....	50.00
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———, Engineering Law Lecturer.....	50.00
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Sheriff of the Practice Court.....	

\$ 7,725.00

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Jennie B. Ritchie, Assistant Librarian (12 months)...	600.00

C. Belmont Preston, Assistant in Library (12 months).	\$ 300.00
Jacob C. Preston, Assistant in Library (9 months)....	150.00
Frank R. Castleman, B. S., Director of Physical Training and Athletics	1,500.00
Margaret L. Johnson, M. D., Instructor in Gymnasium..	400.00
Earl E. Wright, Assistant in Gymnasium.....	120.00
	<hr/>
	\$ 5,120.00

Other Employees.

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William W. Parce, Landscape Gardener.....	200.00
George R. Moore, Carpenter.....	900.00
John Gumeson, Carpenter	960.00
Dan E. Haywood, Employee on Campus.....	600.00
E. S. Garwood, Night Watchman.....	720.00
W. J. Albertson, Teamster.....	600.00
Abraham L. Smith, Janitor Main Building.....	600.00
E. M. Dickson, Janitor Engineering Building, Gymnasium, and Old Anatomy Building.....	360.00
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Arthur Duff, Janitor Shops Building.....	180.00
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R. C. Morris, Janitor Library.....	135.00
Mrs. Mary Coffey, care of rooms Woodbury Hall and Cottages 1 and 2.....	342.00
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Charles E. Cummings, Superintendent of Heating and Lighting.	1,200.00
John Burgner, Fireman	720.00
E. E. Barrows, Fireman.....	720.00
Thomas Storm, Fireman (9 months).....	540.00
_____, Fireman
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	\$15,161.89

Summary.

Administration.	\$ 10,984.00
College of Liberal Arts.	61,565.00
Summer School	2,730.00
College of Engineering.	18,340.00
School of Medicine.	8,345.00
University Hospital	3,972.00
School of Law.	7,725.00
Library and Physical Training.	5,120.00
Other Employees	15,161.89
	<hr/>
	\$133,942.89

SECRETARY'S FEE REPORT.*

From October 1, 1908, to October 1, 1910.

Receipts.

Cash on hand last report.	\$ 7.64
Cash in hands, H. S. Visitor.	100.00
Tuitions and fees from College of Liberal Arts and College of Engineering.	28,669.00
Tuitions and fees from Law School.	9,504.66
Tuitions and fees from Medical School.	11,034.33
Hospital receipts	20,560.40
Summer School tuitions and fees.	4,968.00
Biology fees	206.50
Chemistry fees	3,321.35
Geology fees	195.45
Physics fees	10.00
Botany fees	41.00
Education fees	113.00
Engineering materials fees.	2,870.00
Associated Students of the University of Colorado.	5,690.00

* Note—Of the \$178.00 in notes reported October 1, 1908, \$38.25 has been collected and included in the cash receipts; the remainder has been cancelled as uncollectible. Notes for tuition during this biennial period are not included in this report, but will be accounted for as collected.

Room rents	\$ 2,286.95
Deposits	986.00
Fines.....	276.56
Miscellaneous.	3,159.20
	<hr/>
	\$94,000.04

Deposits with Treasurer, Etc.

Deposited with University Treasurer.....	\$93,719.40
Cash in hands H. S. Visitor.....	100.00
Cash on hand	180.64
	<hr/>
	\$94,000.04

Respectfully submitted,

FRANK H. WOLCOTT,
Secretary Board of Regents.

REPORT ON PERMANENT FUND.

From October 1, 1908, to October 1, 1910.

By balance, October 1, 1908:

Invested warrants.....	\$ 27,763.87
Cash available.....	21,140.58

\$ 48,904.45

By receipts, October 1, 1908, to October

1, 1910	\$ 3,284.25
---------------	-------------

To payment to University Treasurer.....	\$ 24,044.29
---	--------------

To balance, October 1, 1910:

Unavailable warrants invested.....	\$ 27,763.87
Cash available	380.54

\$ 52,188.70 \$ 52,188.70

W. J. GALLIGAN,
State Treasurer.

REPORT ON UNIVERSITY LANDS.

October 1, 1910.

Total acres owned, October 1, 1910.....	11,005.96
Total acres in Reservation.....	4,200
Total acres outside of Reservation.....	6,805.96
Total acres sold from Oct. 1, 1908, to Oct. 1, 1910.....	240
Total acres now rented.....	3,465.96

Total amount turned over to the State Treasurer by the State Board of Land Commissioners for the credit of the University Permanent Fund between the dates of October 1, 1908, and October 1, 1910. (This is made up of all payments on the purchase price of lands sold during this time, as well as the annual payments on lands previously sold and now covered by certificates of purchase).....\$ 3,284.25

Total amount turned over to the State Auditor by the State Board of Land Commissioners for the credit of the University Income Fund between the dates of October 1, 1908, and October 1, 1910. (This includes all rentals for lands leased, and interest upon the deferred payments on certificates of purchase covering lands sold).....\$ 5,953.95

B. L. JEFFERSON,

Register, State Board of Land Commissioners.

REPORT OF STATE AUDITOR.

From October 1, 1908, to October 1, 1910.

University Tax Fund.

By Balance, October 1, 1908.....	\$ 1,637.97	
By receipts from levy.....	302,580.66	
To amount paid University Treasurer....		\$304,218.63
		<hr/>
	\$304,218.63	\$304,218.63

University Income Fund.

By Balance, October 1, 1908.....	\$ 1,017.23	
By interest	853.94	
By Receipts, rent.....	5,953.95	
To refund, unearned rent, T. K. Propst..		\$ 18.00
To amount paid University Treasurer....		7,807.12
	<hr/>	<hr/>
	\$ 7,825.12	\$ 7,825.12

University Land Permanent.

By balance, October 1, 1908:		
Invested warrants.....	\$ 27,763.87	
Cash available.....	21,140.58	
	<hr/>	
	\$ 48,904.45	
By receipts, October 1, 1908, to October 1, 1910.....	3,284.25	
To payment to University Treasurer....		\$ 24,044.29
To balance, October 1, 1910:		
Unavailable warrants invested.....		27,763.87
Cash available.....		380.54
	<hr/>	<hr/>
	\$ 52,188.70	\$ 52,188.70

Special Building Appropriation.

By Legislative Appropriation, 1909:		
Lighting and Heating Plant.....	\$ 70,000.00	
Scientific Building	70,000.00	
Hale Building	36,000.00	
To amount paid University Treasurer....		\$176,000.00
	<hr/>	<hr/>
	\$176,000.00	\$176,000.00

Respectfully,

ROADY KENEHAN,
State Auditor.

TREASURER'S REPORT.

From October 1, 1908, to October 1, 1910.

Receipts.*

Cash on hand October 1, 1908.....	\$ 15,285.52	
From State Treasurer, 2-5 mill rate.....	304,218.63	
From State Treasurer, Land Income, interest..	\$1,384.17	
From State Treasurer, Land Income, rent...	6,422.95	
		7,807.12
Secretary, Board of Regents, receipts.....		93,719.40
Transferred from State Treasurer, Permanent Land Fund		24,044.29
Transferred from Stratton Fund		3,406.78
Transferred from Macky Fund (account previous payments)		450.00
Philo Sherman Bennett Fund:		
Balance October 1, 1908.....	\$429.73	
Interest.	14.14	443.87
		\$449,375.61

Disbursements.* *

Warrants paid October 1, 1908, to October 1, 1910..	\$434,244.59	
Cash on hand October 1, 1910.....	14,687.15	
Philo Sherman Bennett Fund:		
Warrant paid	\$ 16.00	
Balance October 1, 1910.....	427.87	443.87
		\$449,375.61

CHARLES H. CHENEY,

Acting Treasurer, University of Colorado.

Stratton Fund (\$12,756.78, including \$457.87 interest):

For Stratton Field.....	\$ 9,350.00
To General Fund	3,406.78

* The \$200.00 included in previous report, due from E. J. Temple, omitted by order of Board as uncollectible.

* * The Special Funds reported in 1908 have been devoted by order of the Board to appropriate uses as follows:

Balance Guggenheim Fund to Museum.....	\$ 36.21
Women's Fund to Women's League.....	25.00
Men's Fund to Y. M. C. A., for student interests.....	25.00
Engineering Fund to Engineering Journal.....	50.00

TREASURER'S REPORT ON BUILDING FUND.

Account to October 1, 1910.

Receipts.

From State Treasurer.....	\$176,000.00
---------------------------	--------------

Payments.

On Heating, Lighting and Power Plant; Wings of Hale Science Building; West Wing of a Science and Museum Building	\$134,169.29
Balance in hands of Treasurer October 1, 1910.....	\$ 41,830.71
	<hr/>
	\$176,000.00

CHARLES H. CHENEY,

Acting Treasurer, University of Colorado.

SECRETARY'S REPORT ON BUILDING FUND

To October 1, 1910.

Total Warrants issued on Heating, Lighting and Power Plant; Wings of Hale Science Building; West Wing of a Science and Museum Building:	
Amount paid by Treasurer.....	\$134,169.29
Amount outstanding	1,365.42
	<hr/>
Total warrants issued	\$135,534.71

FRANK H. WOLCOTT,

Secretary Board of Regents.

REPORT ON MACKY BEQUEST.

From August 3, 1909, to October 1, 1910.

Estimated Value.

Real Estate (estimated)	\$ 30,500.00
Personal Property (appraised).....	197,449.00
Cash.	10,171.43
In hands of Executor, about (of the \$47,000.00 part has been paid for expenses).....	47,000.00
Interest, rents, coupons, dividends, etc.....	6,568.40
	<hr/>
	\$291,688.83

Payments.

On Macky Auditorium.....	\$ 73,704.33
Expenses.	1,273.42
	<hr/>
	\$ 74,977.75
Property converted	<hr/>
	\$ 65,049.39
Estimated cost of building.....	\$290,000.00
Payments to date.....	73,704.33

CHARLES H. CHENEY,

Acting Treasurer, University of Colorado.

FRANK H. WOLCOTT,

Secretary Board of Regents.

SECRETARY'S REPORT.

From October 1, 1908, to October 1, 1910.

Warrants issued in payment of expenses of the several departments of the University, during the biennial period, October 1, 1908, to October 1, 1910:

General Administration—Regents' service and mileage, President's and Secretary's salary, salaries of Registrar and his assistants, and all expenses of Registrar's office	\$ 24,502.33
--	--------------

College of Liberal Arts—Instruction and expense.....	\$120,726.05
Biology—Books, apparatus, supplies.....	1,345.09
Chemistry—Books, apparatus, supplies.....	3,660.36
Economics—Books	498.00
Education—Books, supplies	273.52
English—Books	241.66
Geology—Books, apparatus, supplies.....	3,207.00
German—Books	181.81
Greek—Books	549.45
History—Books	623.75
Latin—Books	347.15
Literature—Books, apparatus.....	302.90
Mathematics—Books, apparatus.....	487.24
Museum—Books, apparatus, specimens, etc.....	2,154.28
Music—Books, supplies.....	550.44
Philosophy—Books	273.47
Physics—Books, apparatus, supplies.....	2,552.76
Psychology—Books, apparatus, supplies.....	554.22
Romance Languages—Books	110.65
Systematic Zoology—Books, apparatus, supplies.....	308.76
College of Engineering—Instruction and expense.....	32,039.22
Civil Engineering—Books, apparatus, supplies.....	5,960.87
Electrical Engineering—Books, apparatus, supplies...	1,867.52
Mechanical Engineering—Books, apparatus, supplies..	2,051.63
Engineering Mathematics—Books, apparatus, supplies.	274.71
General Engineering Drawing—Books, apparatus, sup- plies.	150.38
Shops—Machinery, instruments, supplies.....	2,387.09
School of Medicine—Instruction, apparatus, supplies, hospital, dispensary, nurses' cottage and other ex- pense (largely reimbursed by medical tuitions and hospital receipts)	54,301.59
School of Law—Instruction, Library, and other ex- pense (partly reimbursed by tuitions).....	16,075.86
Summer School—Instruction and expense (largely re- imbursed by tuitions)	6,779.44
Library—Services, books, periodicals, binding and sup- plies.	14,094.91

Physical Training—Salaries for Physical Training, apparatus and expense	\$ 3,704.76	
Buildings and Grounds—		
Salaries (janitors, heating and lighting service, and care of grounds).....	\$30,975.70	
Repairs	4,185.64	
Insurance	5,326.65	
Water rent	1,735.00	
Fuel	16,548.46	
Horses	533.71	
Unclassified	1,031.46	
Tools	50.20	\$ 60,386.82
Buildings and Grounds—		
New Buildings	\$12,892.46	
Improvements on Buildings	3,264.43	
Improvements on Grounds.....	5,840.58	21,997.47
Furniture and Supplies.....		11,153.59
Printing		9,650.33
Stationery and Postage.....		2,835.82
Heat and Light Supplies.....		525.47
Telephone and Telegraph.....		301.69
High School Visitation, Lectures by Faculty members, etc		3,174.48
Advertising		890.46
Refunds (including fees to "Associated Students")...		9,723.93
General Unclassified (including interest).....		13,149.06
Total for Biennial Period.....		\$436,927.99
Warrants issued not paid by October 1, 1910.....	\$ 5,197.98	
Warrants, outstanding October 1, 1908, paid.....	2,514.58	
		\$ 2,683.40
Warrants issued from October 1, 1908, to October 1, 1910	436,927.99	
Subtract	2,683.40	
Sum paid by Treasurer.....		\$434,244.59

Total expenditure for Biennial Period.....	\$436,927.99
On new buildings	12,892.46
<hr/>	
For Running Expenses (including usual necessary im- provements and repairs)	\$424,035.53
Average annual expenditure, 1909, 1910 (not including new buildings)	212,017.76

Respectfully submitted,

FRANK H. WOLCOTT,
Secretary Board of Regents.

LIBRARIAN'S REPORT.

To the President and Board of Regents, University of Colorado:

GENTLEMEN: I have the honor to present herewith my report on the Library, covering the period from October 1, 1908, to October 1, 1910.

Additions.

The total number of volumes accessioned and placed in the Library during the two years is 8,410, derived from various sources, as follows:

Gifts (public documents).....	700
Gifts (miscellaneous)	2,758
<hr/>	
Total gift accessioned	3,458
By binding	1,129
By purchase	3,823
<hr/>	
Total accessions	8,410

Donations.

Gifts have been received, entered and acknowledged as follows:

Books	3,300
Miscellaneous—College catalogues, pamphlets, etc.....	8,449
Maps	124
<hr/>	
Total	11,873

Note—Donations are shown in detail on page 66

Binding.

Periodicals (completed volumes).....	1,341
Books issued in paper	790
Newspapers	16
Volumes rebound	445
<hr/>	
Total	2,592

Summary.

Number of volumes reported October 1, 1908.....	44,289
Additions—	
By gift	3,458
By binding	1,129
By purchase	3,823
<hr/>	
Total	8,410
<hr/>	
Total	52,699
Deductions—	
Cancelled (lost and worn out).....	150
Less returned and found.....	13
<hr/>	
Total number of volumes in Library Oct. 1, 1910..	52,562

Respectfully yours,

WALTER L. BARNES,
Librarian in Charge.

INVENTORY OF UNIVERSITY PROPERTY.

The following estimates, taken from inventories recently made, are presented as fair approximations:

Grounds.

Campus, sixty-three acres (estimated present value unimproved)	\$138,000.00
Twelve acres Stratton Field.....	12,000.00
Improvements, as fences, grading, roads, walks, pipes, drains, lake, trees, bridges, athletic field, (less pipes transferred to Power Plant invoice).....	\$ 30,000.00
<hr/>	
Total	\$180,000.00

Buildings.

(Approximate Cost of Each.)

Macky Auditorium, expended up to October 1, 1910, about (Cost completed about \$300,000).....	\$74,000.00
Main Building	40,000.00
Library (not including extension of heating pipes in grounds)	75,500.00
Gymnasium	6,000.00
University Cottage	8,000.00
Women's Building	6,000.00
Women's Cottage	4,000.00
Woodbury Hall	25,000.00
Brick House (1037 Regent Street).....	1,000.00
Hale Science Building (two wings added).....	87,000.00
New Science Building, expended October 1, 1910, about (Cost completed about \$55,000).....	12,000.00
Chemistry Building	43,000.00
Class Room Building.....	2,000.00
Engineering Building	50,000.00
Engineering Shops Building.....	32,500.00
Heating, Lighting and Power Plant, including building, boilers, machinery, tunnel, pipes and wiring in build- ing and tunnel, and extension of pipes and wires be- yond tunnel, but outside of buildings.....	112,000.00
Medical Building	9,500.00
Anatomy Building (with refrigerator).....	3,300.00
Hospital (furnished)	15,000.00
Nurses' Home	3,500.00
Simon Guggenheim Law Building.....	55,000.00
Steward's House	1,500.00
Observatory	200.00
Ice House	200.00
Stable and Sheds.....	1,700.00
<hr/>	
Total Buildings	\$667,900.00

Furniture, Implements.

Room furniture, as chairs, settees, desks, tables, movable cases, pictures, office furniture, hospital and dormitory equipment, shades, janitors' supplies, gymnasium apparatus (value).....	\$37,745.00
Team, implements, tools, carpenter's supplies (value) ..	4,081.00
Total	\$41,826.00

Library.

Library (value)	\$75,000.00
-----------------------	-------------

Apparatus, Etc.

College of Liberal Arts—

Biology	\$ 3,879.00
Chemistry	9,010.00
Economics	205.00
Education	616.00
Geology	3,167.00
German	55.00
Greek	391.00
Latin	15.00
Literature	704.00
Mathematics	868.00
Museum	520.00
Music	751.00
Physics	10,636.00
Psychology	1,810.00
Romance Languages	10.00

College of Engineering—

Civil Engineering	12,373.00
Electrical Engineering	10,688.00
Mechanical Engineering and Shops.....	15,487.00
General Engineering Drawing	662.00

School of Medicine—

Medical, Anatomy and Dispensary.....	8,512.00
Hospital	1,946.00
Hospital Clinical Laboratory.....	639.00

School of Law—

Inventory	\$ 454.00
-----------------	-----------

\$83,398.00

Collections.

Art	\$ 1,899.00
-----------	-------------

Geological and Mineralogical.....	7,841.00
-----------------------------------	----------

Museum (including Biological collection).....	17,405.00
---	-----------

\$27,145.00

Summary.

Grounds	\$ 180,000.00
---------------	---------------

Buildings	667,900.00
-----------------	------------

Furniture, Implements	41,826.00
-----------------------------	-----------

Library	75,000.00
---------------	-----------

Apparatus, etc	83,398.00
----------------------	-----------

Collections	27,145.00
-------------------	-----------

\$1,075,269.00

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UNIVERSITY OF COLORADO BULLETIN

VOL. XII, No. 6

Published Monthly by the Regents of the University of Colorado.
Entered at the Postoffice, Boulder, Colorado, as second-class mail matter.

BIENNIAL REPORT OF THE REGENTS

1910-1912

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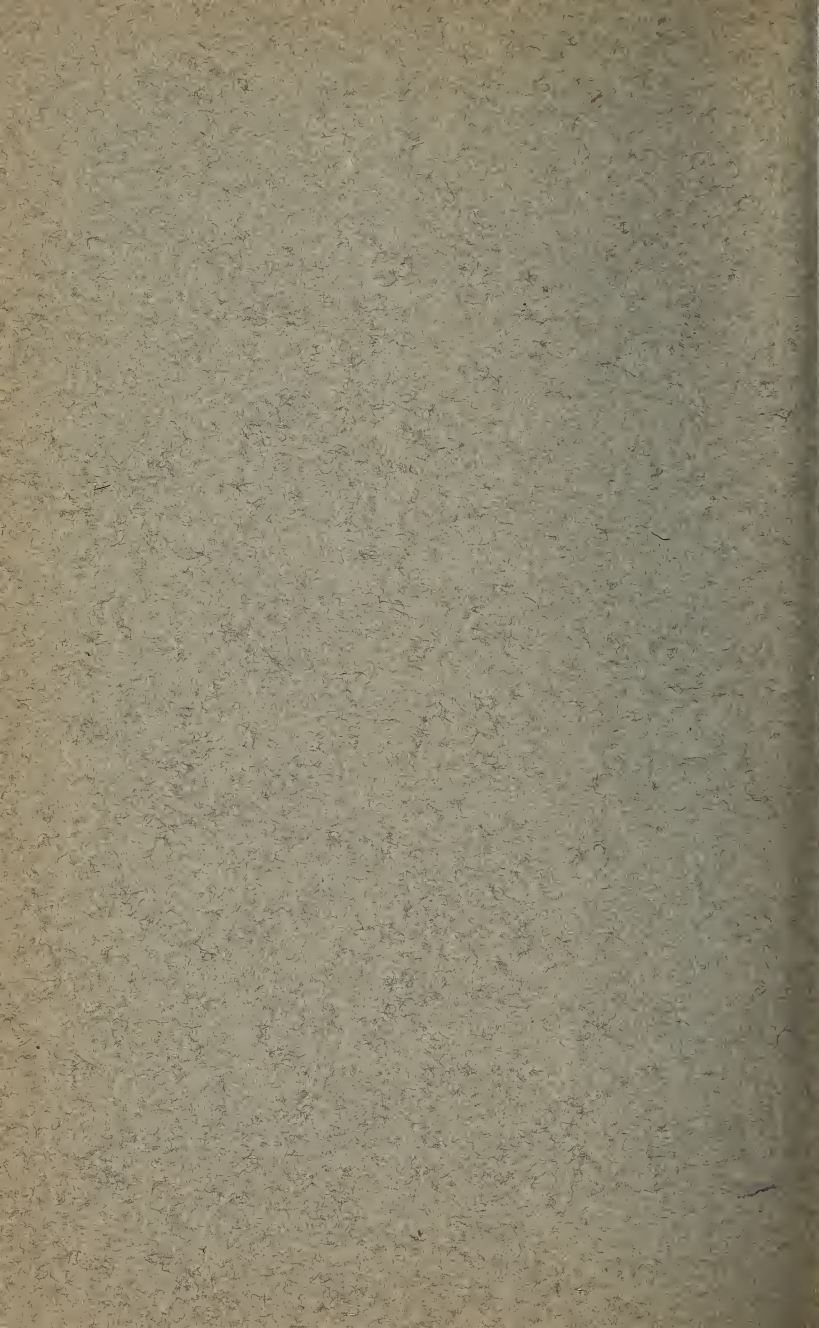


UNIVERSITY OF ILLINOIS BOULDER, COLORADO.

OCTOBER, 1912

JAN 8 1915

PRESIDENT'S OFFICE



UNIVERSITY OF COLORADO BULLETIN

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BOULDER, COLORADO, OCTOBER, 1912

EIGHTEENTH IN THE SERIES
OF BIENNIAL REPORTS

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UNIVERSITY OF COLORADO

EIGHTEENTH BIENNIAL REPORT OF THE REGENTS, 1910-12.

To the State Superintendent of Public Instruction, the Governor of the State of Colorado, the State Library Commission, and the Nineteenth General Assembly:

The Eighteenth Biennial Report, from October 1, 1910, to October 1, 1912, as herewith presented by the Regents.

Because of the somewhat contradictory requirements of the various statutes regarding reports from the University, this Biennial Report of the Regents is intended to cover the following:

President's report to the Regents.

Regents' report to the Superintendent of Public Instruction.

President's report to the Superintendent of Public Instruction.

Regents' report to the Governor of the State.

Librarian's report to the Library Commission.

INTRODUCTORY.

For convenient reference attention is called to some of the more important facts in this Report. Those who cannot take time to read the Report may get a general view of the history of the past two years by reading this summary.

General.

Tabulation of attendance and degrees by years from the beginning—pp. 8, 9.

Occupations of graduates—p. 10.

Complete financial history—p. 110.

Graduate School.*

Plan for developing the Graduate School—p. 14.

College of Liberal Arts (Including the College of Commerce, the College of Education, the School of Social and Home Service).

Good results of the Group System—p. 15.

The 70 books and articles published in two years by members of the Faculty—p. 17.

Establishment of the School of Social and Home Service—p. 21.

Research activity, as shown by such work as study of Colorado fishes; study of mountain plants; Prof. Cockerell's investigations in Entomology, of world-wide interest; investigations by the Department of Chemistry of coal dust and mine air in Colorado coal mines; the Department of Geology as headquarters of State Geological Survey; wireless telegraph station—p. 22.

The adaptation of the College of Commerce to the needs of the young men of the State—p. 24.

Development of the College of Education; its significance and value to the State—pp. 25, 26, 27.

The School of Social and Home Service; general use; special opportunity for preliminary training of nurses—p. 28.

Superior opportunity for a great Summer School; growth; plans for enlargement—pp. 32-34.

College of Engineering.

Laboratory for road materials testing; Ainsworth Electrical Standardizing Laboratory—pp. 43, 44.

Reorganization of courses in Chemical Engineering—p. 36.

The 17 books and articles published by members of the Faculty in last two years—p. 37.

Remarkable list of teachers graduated from the College of Engineering—p. 38.

Exceptional demand for the graduates—p. 41.

The 22 lines of special investigation conducted the past two years—pp. 41-44.

Need for a Department of Architecture—p. 44.

Medicine.

Transfer of last two years in Medicine to Denver, January 1, 1911, and Denver and Gross College of Medicine completely merged with the University—p. 44.

School of Medicine ranked in Class A.—p. 45.

Advanced entrance requirements and consequent temporary decrease of students—p. 49.

School of Pharmacy opened September, 1911; high requirements of the School—p. 51.

Revised curriculum of the Medical School—p. 52.

Graduate study in Medicine offered—p. 52.

Department of Preventive and Experimental Medicine established; extension work for the benefit of the State; State Hygienic Laboratory—p. 53.

Denison Research Laboratory—p. 54.

Published books and articles last two years, reported, 125—p. 55.

Lines of research past two years, reported, 13—p. 65.

School of Law.

Advanced standards in Law School and consequent temporary decrease of numbers—p. 66.

The Judge C. I. Thomson gift to the Law Library—p. 67.

High rank in State examinations—p. 67.

Extension Division.

Extension Division organized, beginning May 1912; appointment of Director of Extension; rapid development of work; importance to State—pp. 67-69.

Library.

Nearly 12,000 volumes added in two years—p. 69.

Course in Library Science and Practice—p. 70.

Freshman instruction in use of Library—p. 70.

Debate. Athletics. Associated Students.

Inter-State debating Leagues—p. 71.

Increase of out-of-door athletics—p. 72.

Good condition of athletic finances—p. 72.

Need of completing Stratton Athletic Field—p. 73.

Question of School of Physical Training—p. 74.

Enlargement of power and activities of "Associated Students"—p. 75.

Efficiency of management of "Associated Students"—p. 76.

Relation to High Schools.

The highly important work of the High-School and University Conference in solving common problems shown by adopting higher admission requirements; work of joint committees on subjects of study; investigating qualifications of teacher; definition of "units"; study of purposes of inspecting; ethics in recommendation of teachers; high-school athletics; economy in matter and method; appointing Advisory Committee to the High-School Inspector—pp. 76-80.

Report of the High-School Inspector from the University showing improvement in high-school attendance, in buildings and equipment, salaries, and qualifications of teachers—p. 81.

The large number of graduates of the University placed in leading positions—p. 84.

High schools visited by members of the Faculty—p. 84.

Buildings. Needs. Gifts.

Progress on the Macky Auditorium; moving the administration, the art collection, and two college departments to the wings of the Auditorium; completion of Geology Wing of Science and Museum Building—p. 85.

Statement that the average cost per student in the 40 state universities is 74 per cent. greater than in the University of Colorado, and showing of proportionate needs in the University—p. 85.

Important Gifts: Ainsworth Electrical Standardizing Laboratory; The Dr. Henry S. Denison Research Laboratory; Pathological material from St. Joseph's Hospital; books donated to Library, valued at \$5,000; the Judge C. I. Thomson collection donated to Law Library—pp. 43, 54, 67, 97, 99.

COLLEGES AND SCHOOLS OF THE UNIVERSITY.

The Colleges and Schools of the University of Colorado are the following:

- I. COLLEGE OF LIBERAL ARTS.
Courses leading to the degree B. A.
- II. COLLEGE OF COMMERCE.
Courses leading to the degree B. A. and special certificate.
- III. COLLEGE OF EDUCATION.
Courses leading to the degree B. A. and special certificate.
- IV. SCHOOL OF SOCIAL AND HOME SERVICE.
Courses leading to certificate of work done.
- V. GRADUATE SCHOOL.
Leading to the degrees M. A. and Ph. D.; also M. S., C. E., E. E., M. E.
- VI. COLLEGE OF ENGINEERING.
Civil Engineering, leading to the degree B. S. (C. E.)
Electrical Engineering, leading to the degree B. S. (E. E.)
Mechanical Engineering, leading to the degree B. S. (M. E.)
Chemical Engineering, leading to the degree B. S. (Ch. E.)
- VII. SCHOOL OF MEDICINE.
Leading to the degree M. D.
- VIII. SCHOOL OF PHARMACY.
Leading to the degrees Ph. C., B. Phar., and B. S. in Phar.
- IX. SCHOOL OF LAW.
Leading to the degree LL. B.
- X. SUMMER SESSION.
- XI. UNIVERSITY EXTENSION DIVISION.
Correspondence Study.
Study Centers.
Lectures and Addresses.
Library Extension, and Bureau of Information.
Bulletins of Investigations.
Social Centers.

ATTENDANCE.

The following is the attendance by departments for each year:

Year	Grad.	Arts	Eng.	Med.	Law	Total, reg- ular, of Univ. Gr., exc. Dups	Summer School	Prep.	Normal	Grand total exc. Dups
1877-8	...	...	...	...	...	...	...	61	14	75
1878-9	...	12	...	...	...	12	...	56	22	90
1879-80	...	16	...	...	...	16	...	67	9	92
1880-1	...	13	...	...	...	13	...	61	7	81
1881-2	...	17	...	...	...	17	...	49	9	75
1882-3	...	11	...	...	...	11	...	54	17	82
1883-4	...	10	...	1	...	11	...	76	13	100
1884-5	...	22	...	19	...	41	...	58	...	99
1885-6	1	20	...	13	...	34	...	55	...	89
1886-7	3	15	...	5	...	23	...	78	...	101
1887-8	2	25	...	10	...	37	...	71	20	128
1888-9	3	21	...	15	...	39	...	73	17	129
1889-90	2	50	...	23	...	75	...	74	4	153
1890-1	...	55	...	15	...	70	...	105	...	175
1891-2	...	55	...	11	...	66	...	103	...	169
1892-3	3	77	...	26	23	129	...	158	...	286
1893-4	5	85	...	42	28	159	...	146	...	305
1894-5	18	106	11	51	19	204	...	192	...	396
1895-6	20	135	22	62	29	267	...	242	...	509
1896-7	29	162	29	78	26	324	...	276	...	600
1897-8	29	198	38	33	39	337	...	273	...	610
1898-9	25	215	61	50	53	390	...	310	...	700
1899-'00	22	252	64	61	46	433	...	356	...	789
1900-1	17	256	80	60	62	466	...	367	...	833
1901-2	22	263	103	63	73	510	...	352	...	862
1902-3	19	269	123	63	60	531	...	363	...	894
1903-4	23	312	142	52	62	581	...	385	...	966
1904-5	33	381	173	53	61	685	60	415	...	1,143
1905-6	37	410	176	70	62	743	79	504	...	1,308
1906-7	38	473	215	58	69	840	98	527	...	1,450
1907-8	37	532	271	52	83	961	126	...	...	1,044
1908-9	72	550	281	55	105	1,041	129	...	...	1,128
1909-10	83	577	292	80	102	1,108	168	...	...	1,221
1910-11	61	697	292	152	108	1,284	186	...	...	1,411
1911-12	84	725	288	118	126	1,306	248	...	...	1,474
	688	7,017	2,661	1,391	1,236	12,764	1,094	5,907	132	19,567

GRADUATES.

The following is a list of the degrees and certificates for each year:

Year	Hon.	Grad.	Arts	Eng.	Med.	Law	Total	*Dip. Ed.	*Dip. Com.
1882.....	1	...	6	...	...	...	7	...	...
1883.....	..	...	2	...	...	...	2	...	...
1884.....	..	...	1	...	...	...	1	...	...
1885.....	..	1	...	...	2	...	3	...	...
1886.....	..	...	7	...	2	...	9	...	...
1887.....	..	2	2	...	1	...	5	...	...
1888.....	..	...	4	...	1	...	5	...	...
1889.....	2	...	3	...	1	...	6	...	...
1890.....	..	...	3	...	4	...	7	...	...
1891.....	2	...	9	...	5	...	16	...	...
1892.....	..	...	4	...	1	...	5	...	...
1893.....	2	2	10	...	3	...	17	...	...
1894.....	..	1	10	...	12	12	35	...	...
1895.....	1	4	12	...	11	6	34	...	...
1896.....	..	...	11	...	13	7	31	...	...
1897.....	..	1	19	1	22	9	52	...	...
1898.....	1	5	21	3	...	9	39	...	...
1899.....	1	5	20	12	...	13	51	...	...
1900.....	1	7	28	5	7	...	48	...	...
1901.....	..	6	43	5	8	12	74	...	...
1902.....	1	9	33	8	13	14	78	...	...
1903.....	..	4	28	13	8	11	64	...	...
1904.....	..	12	47	16	14	20	109	...	...
1905.....	3	11	41	14	6	15	90	...	...
1906.....	2	12	64	14	16	12	120	...	...
1907.....	..	9	53	19	12	16	109	...	...
1908.....	1	14	77	27	11	16	146	8	...
1909.....	2	15	72	32	11	29	161	22	...
1910.....	1	14	82	34	8	21	160	28	...
1911.....	..	15	96	37	39	27	214	31	1
1912.....	1	16	110	43	39	22	231	49	...
	22	165	918	283	270	271	1,929	138	1

*These are given as evidence that certain specified courses have been included in the work for the B.A. and M.A. degrees.

The graduates of the Preparatory School, from the beginning until the School was discontinued, September, 1907, not included in the foregoing summary, number 587.

The graduates of the Denver College of Medicine, the Gross Medical College, and the Denver and Gross College of Medicine, now merged with the Medical Department of the University, from the beginning until September, 1910, not included in the foregoing summary, number 620.

Occupations of Graduates.

From its opening to the present (1877-1912) over 7,000 students have been enrolled in the University, not including the Preparatory and Summer School students; 1,736 have completed a course of study leading to a degree; 156 have received two degrees, and 9 three degrees; 3 have received honorary degrees. In all, 1,929 degrees have been conferred upon 1,755 persons—1,224 men and 531 women. All but 71 are living, 1,025 live in Colorado, 606 outside of Colorado, and the addresses of 53 are unknown. A geographical distribution shows alumni in 125 Colorado towns, in 42 other states, the Philippine Islands, Porto Rico, Hawaii, Alaska, and 10 foreign countries. The 1,929 degrees are distributed as follows: Arts, 918; Engineering, 283; Medicine, 270; Law, 271; Graduate, 165; Honorary, 22.

Below are given statistics as to occupations. These tables cover only the 1,698 degrees conferred before 1912, on 1,547 persons; of these 133 received two degrees and 9 three degrees. The figures are on a basis of degrees, so as to make possible a division by departments; necessary deductions are made in the Summary:

College of Liberal Arts.

[This and the following tables do not include the 231 graduates of 1912.]

Astronomers	1
Dentists	2
Druggists	1
Engineers	31
Farmers	6
Housewives	142
Lawyers	61

In mercantile pursuits.....	42
Ministers	6
Newspaper writers ,.....	9
Nurses	2
Physicians	15
Students in post-graduate courses.....	54
Teachers—	
In colleges and universities or in supervisory positions in secondary schools.....	57
In secondary and elementary schools.....	253
U. S. government employees.....	10
Unclassified	92
Dead	24
<hr/>	
Total	808

Graduate School.

Engineers	13
Dentists	1
Housewives	18
Lawyers	3
In mercantile pursuits.....	1
Ministers	4
Newspaper writers	1
Students in post-graduate courses.....	5
Physicians	2
Teachers—	
In colleges or universities or in supervisory positions in secondary schools.....	53
In secondary and elementary schools.....	35
U. S. government employees.....	2
Unclassified	5
Dead	6
<hr/>	
Total	149

College of Engineering.

Engineers	168
Farmers	2
In mercantile pursuits.....	4

Students in post-graduate courses.....	3
Teachers in colleges or universities.....	22
Unclassified	37
Dead	4

Total240

School of Medicine.

Farmers	1
Housewives	3
Physicians and surgeons.....	201
Unclassified	5
Dead	21

Total231

School of Law.

Farmers	4
Houswives	3
Lawyers	194
In mercantile pursuits.....	9
Newspaper writers.....	1
Students in post-graduate courses.....	2
Teachers in colleges or universities.....	1
Unclassified	22
Dead	13

Total249

Honorary Degrees.

Honorary degrees have been conferred upon eight clergymen, eight educators, one jurist, one physician, one statesman, one business man, and one architect, 21. Three of these are dead.

Summary.

A summary of the foregoing figures, with duplications deducted, follows: This summary does not include the graduates of 1912.

Architects	1
Astronomers	1

Dentists	2
Druggists	1
Engineers	201
Farmers	13
Housewives	154
Lawyers	216
In mercantile pursuits.....	55
Ministers	16
Newspaper writers	8
Nurses	2
Physicians	207
Students in post-graduate courses.....	62
Teachers—	
In colleges and universities or in supervisory positions in secondary schools.....	101
In secondary and elementary schools.....	273
U. S. government employees.....	11
Unclassified	155
Dead	68
Total	1,547

GRADUATE SCHOOL.

In the last two years higher degrees have been conferred in course upon 31 candidates, as follows: Master of Arts, 21; Civil Engineer, 7; Master of Science, 3.

In 1912 the honorary degree, Doctor of Laws, was conferred upon Florian Cajori.

The members of the Graduate Committee are: J. Raymond Brackett, Dean; S. Epstein, Secretary; Francis Ramaley and Frederick A. Bushee.

There has been no appropriation for the Graduate School in the past; the work has been done by men whose hands were already full of business with undergraduate courses. If this School is to be developed, there must be an increase and readjustment of the teaching force. Because of the demand for graduate courses in these departments, further competent assistance should first be given to mathematics, physics, economics and history; nearly every department needs additional help of competent instructors.

To put the School on an equality with its great competitors would require a large expenditure. The Regents ask for a small sum to make a beginning. Quoting from a report of the Graduate Committee: "For the immediate necessities the Graduate Committee asks for an appropriation of \$20,000: for each of the next two years \$1,400 for a new assistant professor; \$1,000 for a new instructor; \$2,400 for scholarships and fellowships, and \$5,200 for books and periodicals."

In the Department of Economics and Sociology, there is a large demand for graduate courses, especially by men; but the time of Professor Bushee is absorbed by undergraduate classes. The appointment of an instructor in mathematics would relieve Professor Epstein of most undergraduate courses. Advanced courses are called for: in pure mathematics, 5h; in mathematical physics, 3h; in statistics, 2h. These courses are of great importance to other departments—as physics, chemistry and economics. The Department of Mathematics is already widely known; it has a library of 2,000 volumes; and advanced students beyond the usual number in universities of this size are already in attendance. The University of Colorado can build up first class graduate work in this Department at a comparatively slight expenditure.

An old and established university may live upon its accumulations, but a new school needs funds for the purchase of books and periodicals; the Graduate School has a pressing need for foundation books in nearly every department; the great publications of new knowledge and discovery, the important sets of transactions of learned societies, are beyond the reach of the Library.

Able students are sooner or later drawn from this to other graduate schools by superior inducements of instruction, money and position. This continual taking away of the best, results in great loss of power and prestige. These students of ability are needed here; some can teach; nearly all can help in original investigation. There should be established at least one fellowship and one scholarship of liberal income for each department whose professor offers graduate work; and this number should be increased from year to year.

The Graduate School is the training place for special investigation in science, in philosophy, in literature, in history, in so-

ciology. It prepares for journalism and for public service. A large proportion of high school teachers, principals and superintendents in Colorado come from this School; it furnishes preparation for instructorships and professorships in colleges and universities.

The scholarship of the University is judged by the quality of work done in preparing students for higher degrees. It is a matter of importance to every citizen of Colorado that this work be of a high standard of excellence, and that ample means be provided.

COLLEGE OF LIBERAL ARTS.

On the whole, it may be confidently reported that the College of Liberal Arts is working more efficiently than ever before. It is retaining its place as a center of humanistic culture and at the same time is serving the needs of technical students and a public that promises to grow wider every year. A temporary halt in the abnormally rapid increase of students has permitted better adjustment between the teaching force and the various classes. Even as it is, however, we need to strengthen the standing of our junior teachers. It is a well known fact that many large universities employ young and inexperienced assistants for Freshman classes, and the University of Colorado compares favorably in this respect with other institutions; but even here, there is room for improvement. Furthermore, every year sees a growth in the number of courses taken by students who intend to enter one of the technical schools, and inasmuch as this is generally Freshman and Sophomore work, it is doubly important that the instructors therein should be of the highest efficiency.

The present graduating class is under the new Group System, and one is pleased to note that the expectations of the two last reports are being amply fulfilled. Undesirable scattering in the choice of courses has been checked, and the major group is pursued until the student has some real power in his special field. At the same time, there is enough freedom of election to provide for a liberal range of general education.

The list of changes in the Faculty, the tabulation of publications, and the paragraphs on special activities, will explain themselves. These are followed by the detailed reports of the

Summer School, of the College of Commerce, of the College of Education, of the School of Social and Home Service, and of the Geological Survey.

Faculty.

The following promotions have been made in the last two years: Miss Antoinette Bigelow, M.A., to be Dean of Women and Assistant Professor in English Literature, June, 1911; Harry A. Curtis, B.S. (Ch.E.), M.A., to be Assistant Professor in Chemistry, April, 1912.

The following appointments have been made: Charles H. Williams, B.A., B.S., in Ed., to be Assistant Professor of Education, January, 1911; Paul M. Dean, M.A., to be Instructor in Chemistry, September, 1911; Carl C. Eckhardt, Ph.D., to be Instructor in History, September, 1911; Max Ellis, Ph.D., to be Instructor in Biology, September, 1911; S. S. Kingsbury, Ph. D., to be Instructor in Secondary Practice Teaching, September, 1911; S. Griswold Morley, Ph.D., to be Instructor in Romance Languages, September, 1911; Harold E. Robbins, M. A., to be Instructor in Physics, September, 1911; J. Warren Stehman, M.A., to be Instructor in Economics, September, 1911; Arthur G. Vestal, B.A., to be Instructor in Biology, September, 1911; Frederick A. Bushee, Ph.D., to be Professor of Economics and Sociology, September, 1912; William F. Baur, Ph.B., to be Instructor in German, September, 1912; William Bethke, M.A., to be Instructor in Economics, September, 1912; John H. V. Finney, B.S. (E.E.), to be Instructor in Physics, September, 1912; Leonard P. Fox, M.A., to be Instructor in History, September, 1912; John Gutknecht, B.A., to be Instructor in English, September, 1912; Miss Jessie Hutsinpillar, M.A., to be Instructor in English, September, 1912; Donald McFayden, M. A., to be Instructor in History, January, 1912, and to be Instructor in Greek, September, 1912; George N. Rohwer, B.A., to be Instructor in Chemistry, September, 1912; Miss Marie Sorenson, M.A., to be Instructor in English, September, 1912.

The following members of the Faculty have severed their connection with the University: Charles B. Dyke, M.A., June, 1911; Joseph L. Kingsbury, B.A., June, 1911; David J. MacDonald, M.A., June, 1911; Wilfred W. Robbins, M. A., June, 1911; Whitford H. Shelton, M. A., June, 1911; Prof. John B.

Phillips, Ph.D., June, 1912; Gerard van Rossen Hoogendijk, Ph.D., June, 1912; Arnold J. Lien, M.A., June, 1912; Miss Mildred S. MacArthur, M.A., June, 1912; Harold E. Robbins, M.A., June, 1912.

The following members of the Faculty have been granted leave of absence: Prof. George Norlin, Ph.D., for the year 1912-13; Prof. James F. Willard, Ph.D., for the year 1912-13.

Temporary Appointment: Carl C. Eckhardt, Ph.D., is to be Acting Professor of History for the year 1912-13.

Publications.

The following table will indicate the publications of the Faculty of the College of Liberal Arts during the past two years: Charles C. Ayer, Ph.D., Professor of Romance Languages:

"The Value of Modern Languages in a Tour Around the World." University of Colorado Studies, Vol. IX, No. 1.

J. Raymond Brackett, Ph.D., Professor of Comparative and English Literature:

"Why Teach Modern Languages?" University of Colorado Studies, Vol. IX, No. 1.

George M. Chadwick, Professor of Music:

"Some Phases of Musical Aesthetics." University of Colorado Studies, Vol. VIII, No. 1.

T. D. A. Cockerell, Professor of Zoology:

"Bees in the Collection of the United States National Museum, I, II." Proc. U. S. National Museum, March, 1911, April, 1911.

"Descriptions and Records of Bees, XXXIV-XL." Annals and Magazine of Natural History, 1911.

"Reality and Truth." Popular Science Monthly, April, 1911.

"Fossil Insects from Florissant, Colorado." Bull. Amer. Mus. N. Hist., XXX.

"The Scales of Freshwater Fishes." Biological Bulletin, May, 1911.

"Names applied to Bees of the Genus *Nomada* Found in North America." Proc. U. S. Natl. Museum, Vol. 41.

"The University in Politics." Popular Science Monthly, August, 1911.

"The Fauna of Boulder County, Colorado." University of Colorado Studies, VIII, No. 4.

"New and Little-Known Bees." Trans. Amer. Entom. Soc., XXXVII.

"Samuel Hubbard Scudder." Science, September 15, 1911.

"The Bees of the Solomon Islands." Proc. Linnean Society of New South Wales, XXXVI.

"Text-books and Reviewing." Science, October 27, 1911.

Described as new in 1911: 9 genera and 180 species.

"Descriptions and Records of Bees," XLI-XLVI. Annals and Magazine of Natural History.

"The Red Sunflower." Popular Science Monthly, April, 1912.

"Hymenoptera, Apoidea." Percy Sladen Trust Expedition to the Indian Ocean. Trans. Linnean Soc. of London, XV.

"Names Applied to Bees of the Genus *Osmia*, Found in North America." Proc. U. S. Natl. Mus., Vol. 42.

"New Bees from Brazil." Psyche, April, 1912.

"The Fauna of Boulder County, II." University of Colorado Studies, IX, Nos. 2-3.

"Mollusca from the Tertiary Strata of the West." (With J. Henderson). Bull. Amer. Mus. Natl. Hist., XXXI.

Described as new in 1912, 3 genera and 117 species.

Lawrence W. Cole, Ph.D., Professor of Psychology and Education:

"Reactions of Frogs to Chlorides of Ammonium, Potassium, Sodium, and Lithium." Jour. of Comp. Neurology and Psychology, Vol. 20, No. 6.

"The Relation of Strength of Stimulus to Rate of Learning." Jour. of Animal Behavior, April, 1911, Vol. 1, No. 2.

"Claparède's *La Psychologie Animale* de Charles Bonnet." Jour. of Phil. Psych. and Scientific Methods, Vol. 8, No. 22, October 26, 1911.

"Adding Upward and Downward." Journal of Educational Psychology, February, 1912.

Harry A. Curtis, B.S. (Ch.E.), M.A., Instructor in Chemistry:

"Rapid Electrolytic Methods Applied to Western Ores." The University of Colorado Journal of Engineering, No. 6, 1911.

"A Universal Law." The University of Colorado Journal of Engineering, No. 8, 1912.

"The Electron Theory." The Proceedings of the Colorado Scientific Society, Denver, 1912.

Paul M. Dean, M.A., Instructor in Chemistry:

"The Action of Acetic Anhydride on Some Benzylidene Anthranilic Acids." (With John B. Ekeley). The Journal of the American Chemical Society, Vol. 34, No. 2, 1912.

Carl C. Eckhardt, Ph.D., Acting Professor of History:

"Translation of The Modern Woman's Rights Movement, by Kaethe Schirmacher." Macmillan, 1912.

John B. Ekeley, Ph.D., Professor of Chemistry:

"The Nature of Some Coal Dusts and Mine Air from Colorado Coal Mines." The Journal of Industrial and Engineering Chemistry, Vol. 3, No. 8, 1911.

"The New Proposed Coal Mining Laws for Colorado." The University of Colorado Journal of Engineering, No. 7, 1911.

"The Action of Acetic Anhydride on some Benzylidene Anthranilic Acids." (With Paul M. Dean). The Journal of the American Chemical Society, Vol. 34, No. 2, 1912.

"A Laboratory Manual of Inorganic Chemistry." Book. John Wiley and Sons, New York and London, June, 1912.

Max M. Ellis, Ph.D., Instructor in Biology:

"A New Species of Polycystid Gregarine from the United States." Zool. Anzeiger, Bd. V., Nr. 39, (1), 25-27, 1912.

"Description of Cambarincola Macrodonia, a new Discodrilid." University of Colorado Studies, Vol. IX, No. 2-3, 51-52, 1912.

"Five Polycystid Gregarines from Guatemala." Zool. Anzeiger, Bd. XXXIX, Nr. 23-24, 79-88, 1912.

"A New Discodrilid Worm from Colorado." Proc. U. S. Natl. Mus., Vol. 42, 481-486, 1912.

"The Scales of Some of the Engraulidae." U. S. Fish Commission, (In Press).

"The Gymnotid Eels of Tropical America." Memoirs of Carnegie Museum, (In Press).

"A New Species of Gregarine from North American Diplopods." Zool. Anzeiger, Bd. XL, Nr. 1, 1912.

Russell D. George, M.A., Professor of Geology:

"Rock-Making Minerals." 1911, the Camera, Boulder, Colo.

"Notes on the Metallic Minerals." W. F. Robinson Printing Co., Denver, 1911.

"The Common Rocks." 1912, The Camera, Boulder, Colorado.

John P. Harrington, B.A., Instructor in American Archæology:

"The Phonetic System of the Ute Language." Vol. VIII., No. 3, University of Colorado Studies.

F. B. R. Hellems, Ph.D., Dean, Professor of Latin:

"Disengaging the Essence of Greek Poetry." The Dial, May 1, 1911, Vol. L, No. 597.

"The Interest of India." The Dial, October, 1911.

"The Three Egypts." The Dial, January, 1912.

"Our Facile Mastery of English." The Forum, September, 1912.

"The Articulation of the Old Education and the New in Colorado." Colorado School Journal, February-March, 1911.

Various Reviews in Classical Philology and The Dial.

Junius Henderson, B.A., Professor of Natural History:

"Extinct and Existing Glaciers of Colorado." University of Colorado Studies, Vol. VIII, No. 1.

"The Mollusca of Colorado, III." University of Colorado Studies, Vol. IX., No. 2-3.

"Oreohelix Colonies in Colorado." The Nautilus, Vol. XXV, pp. 133-139; Vol. XXVI, pp. 9-11, 1912.

Oliver C. Lester, Ph.D., Professor of Physics:

"Atmospheric Electricity." University of Colorado Journal of Engineering, No. 7, p. 87.

"Interscholastic Athletics." Colorado School Journal, April, 1911.

Melanchthon F. Libby, Ph.D., Professor of Philosophy:

"Continuity of Bergson's Thought." (In Press).

S. Griswold Morley, Ph.D., Instructor in Romance Languages:

"Some Considerations on Modern Spanish Fiction." University of Colorado Studies, Vol. VIII, No. 2.

"Spanish Ballads." Henry Holt and Co., 1911.

John Burton Phillips, Ph.D., Secretary of College of Commerce,
Professor of Economics and Sociology:

"Need of a State Tax Commission in Colorado." University of Colorado Studies, Vol. VIII, No. 2.

Francis Ramaley, Ph.D., Professor of Biology:

"Tuberculosis as an Economic and Sociologic Factor." University of Colorado Studies, Vol. VIII, No. 3.

"Ecological Cross-Section of Boulder Park (Tolland, Colorado)." (With Louis Mitchell). University of Colorado Studies, Vol. VIII, No. 4.

"Field Observations on the So-Called 'Anemone'." (With Miss Marie Gill.) University of Colorado Studies, Vol. VIII, No. 4.

"The Grass-Flora of Tolland, Colorado, and Vicinity." (With Miss Esther Elder.) University of Colorado Studies, Vol. IX, Nos. 2-3.

"Mendelian Proportions and the Increase of Recessives." American Nat. 46, 344-351, June, 1912.

Frank E. Thompson, B.A., Professor of Education:

"Colorado High School and College Conference." Colorado School Journal, Vol. XXVI, No. 5.

"The High-School and College Conference." University Extension Bulletin, General Series No. 1, Education Series No. 1.

"Colorado High-School and College Conference." Colorado School Journal, Vol. XXVII, No. 9.

"Interests and Life." Colorado School Journal, Vol. XXVI, No. 8.

"Essentials in Elementary Education." Proceedings, Department of Superintendence, 1912.

Grace Fleming Van Sweringen, Ph.D., Professor of Germanic Languages:

"The Boy in the Germanic Hero-Sagas." University of Colorado Studies, Vol. IX, No. 1.

Special Activities.

In this connection one ought to record the establishment of the School of Social and Home Service and the introduction

of Extension Work on a comprehensive plan. Separate reports on these two fields will be found on pages 28 and 67.

In most of the departments research work of some character has been a natural part of the routine; but perhaps the following should be particularly noted:

The Department of Biology has been working on the Fishes and Reptiles of Colorado, with a view to classification and description. Incidentally, several new species have been discovered. Significant studies are being conducted in Alpine and Sub-Alpine Plants; and the mountain laboratory at Tolland is receiving favorable notice throughout the country. Of less popular interest are the palæontological investigations; but their scientific value is just as real. Professor Cockerell has been continuing his work on bees, which has an international scope; and a glance at the list of his publications will show the range of his investigating energy. The red sunflower, developed by him and Mrs. Cockerell, has attracted much attention from scientists as well as from floriculturists. The Department of Chemistry has been investigating various problems of synthetic Organic Chemistry, as well as some practical questions as to rapid electrolytic methods and the nature of coal dusts and mine air in Colorado coal mines. The work of the Department of Geology is shown elsewhere in the report of the State Geologist. In an almost unlimited field the Department of Physics has been concentrating on living problems of Radio-activity and Electricity. Incidentally, a wireless telegraphy station has been established on such a practical working scale that communication with the Pacific Coast has been found feasible.

The foregoing list, brief as it is, may be taken as an indication of what might be accomplished with greater facilities and enlarged resources. It would not be extravagant to say that any encouragement offered to a department in this connection is applied to a most vital function of the modern university.

American Archæology and Ethnology.

In 1911 Prof. Junius Henderson, Curator of the Museum, Mr. W. W. Robbins, then Instructor in Biology, and Mr. J. P. Harrington, of the School of American Archæology, spent some time in western Arizona, eastern California and southeastern Nevada, in the study of the Mohave ethnology, the two former

assisting the latter in the ethnobotanical and ethnozoological work. A large collection of ethnological material was obtained and is now on display in the museum. During the academic years 1910-1911 and 1911-1912, a course in the archæology and ethnology of the Southwest was given in the University by Dr. Edgar L. Hewett and Mr. J. P. Harrington of the School of American Archæology.

THE COLLEGE OF COMMERCE.

The purpose of the College of Commerce is to provide a liberal education and to give at the same time a course of training which shall equip students to enter modern industrial and commercial life. In order to carry out this purpose, the first two years of the course are given to general cultural subjects, including English, modern languages, history, science or mathematics; while the last two years are devoted primarily to more specialized courses, which aim to teach the general laws and conditions underlying our complicated industrial life. Courses of this special nature include the following:

- Advertising,
- Business Organization and Scientific Management,
- History of Commerce,
- Commercial Geography,
- Economic History of the United States,
- Taxation
- Transportation,
- Corporation Finance,
- Money and Banking,
- Journalism,
- Comparative Government,
- Diplomatic and Consular Service,
- Theory and Practice of Accounting,
- Life Insurance.

In addition to the regular courses offered, addresses are given by prominent business men before the School from time to time on practical topics connected with the various subjects of study.

The College of Commerce was started in 1906 and was reorganized on its present basis in 1909. During this period the School has shown a healthy growth. Since the last biennial re-

port a new instructorship has been established in the School, adding greatly to its efficiency. From twelve to fifteen courses in Economics and Sociology are now offered each semester, these courses being open both to the students in the College of Commerce and also to those in the other departments of the University.

The College of Commerce is in no sense a business college. It does not attempt to teach the details of a particular occupation, for such details can be learned better and more quickly in connection with the business itself. It tries rather to meet the present day demands of the business world for men with a broad general education and a specialized training in Economics, Politics and Law, who are expected to fill positions of responsibility. The advantage possessed by these men who have been specially educated for business pursuits has been shown to lie not so much in immediate profit at the beginning of their careers as in the fact that they are capable of more rapid promotion and eventually reach higher positions than those who have not received a broad education.

The College of Commerce of the University of Colorado is the only School of its kind in the State. While it is not a graduate school, like the Harvard School of Business Administration and the Tuck School of Administration and Finance connected with Dartmouth College, its purpose and organization are similar. In the place of graduate work, however, it aims to permit such specialization of work during the last two years of the undergraduate course as will afford a broad business education for the many who are unable to attend a four year college course and take one or two years of graduate work besides.

THE COLLEGE OF EDUCATION.

The College of Education was authorized by the Board of Regents in January, 1908, and organized for work in the spring of that year. It was, and still is, essentially a reorganization of the Department of Education which had been a department of the College of Liberal Arts for many years. This action though a little delayed was directly in line with university tendencies toward practical specialization. The College of Education is simply a scheme of organization which utilizes and directs a part of the energies of the faculty and some of the equipment of the Col-

lege of Liberal Arts in a much more efficient way than heretofore in the study of education and the training of teachers. Those who elect and complete its course of study receive the regular B.A. degree and in addition a Bachelor's Diploma in Education which document it is intended shall be held by those only who are experts in the science and art of education. Similar documents are now being issued and recognized throughout the country as the distinguishing certificate of the better prepared and more efficient educator. The Legislature of 1909 upon the unanimous recommendation of the Council of Education of the Colorado Teachers' Association enacted a law, which gives a state-wide license to teach to college graduates who in addition to their regular course have studied education.

The passage of this law and the organization of the College greatly encouraged University of Colorado students to go into this line of service. Since the organization of the College of Education, attendance in classes in Education has greatly increased. At present (first month, 1912-13) there are enrolled in such classes 284 persons of whom 96 have signified intention of completing requirements for the Bachelor's Diploma and State License. The remaining 188, presumably, are aiming at the State License. The Diploma has been granted thus far to 137 persons, the License to these and 92 others. Practically all have joined the already large company of teachers who have been trained at the University of Colorado and are in responsible teaching and supervisory positions.

Colleges have always trained practically all high-school teachers and many superintendents and principals, but such training was often incidental. More recently colleges and universities have set about doing the work more completely, for the experiences of the past few years have demonstrated the need of a more serious study of Education in the college and of the more systematic training of teachers by such institutions. In line with a growing conviction that the work deserves it, all of the higher schools of the country including every one of the state universities and many of the independent colleges, have definitely organized this work through departments variously known as colleges of education, schools or departments of education, or teachers' colleges. In almost all instances the essentials are the same as those incorporated in our College of Education, that is, the

student is required to take a more systematic course in the subjects he expects to teach and to make a more particular study of education. Likewise, in practically every state the same action as in Colorado has been taken as to the license to teach. The movement the country over has differentiated, or practically created, a *profession of education* as distinguished from a *trade of teaching*.

Practice teaching has offered in most of these schools something of a problem but, so far, has presented little difficulty here. A scheme of co-operation with the Boulder public schools has provided sufficient opportunity for observation and practice and has been mutually profitable for college and city. The college has the advantage, for its apprentices, of real conditions—typical schoolhouses, actual courses of study, commonly used text-books—all these and superintendence at practically no expense. The city has added to its list of teachers as assistants all of the senior students of the College of Education, persons of training and frequently of experience. By acting as assistants to regular teachers and by taking charge especially of the slower divisions of the larger classes they supplement the work of regular teachers and save many pupils for promotion who otherwise would become laggards in the system. Primarily to secure additional practice teaching facilities a Night School and Social Center have just been organized. It is expected that some persons at least will be prepared to take up the establishment and supervision of such “continuation” schools in various places in the State, especially as there is a growing demand for this class of service.

Much of the economy of our College of Education scheme is obvious but it may not be clearly seen that the greatest gain consists in this: the device turns into the profession of teaching with practically no additional expense to the State, a large number of picked and cultured persons who otherwise would not teach at all. It operates to bring to the State's most important service many of its very best citizens. This point will perhaps be better appreciated when it is borne in mind that at least half of the teachers of the State have had no training beyond that afforded by the high schools and that a goodly share of these have not had even so much as the high-school education.

The College of Education trains some who later become principals and superintendents and some who begin teaching

in the lower grades, but its chief work in this, as in other States, consists in the training of teachers for the high schools. That the high-school teacher shall have training practically equivalent to that required for the Bachelor's Diploma in Education is now a fixed principle in American education. This was stated in the report of the Committee of Fifteen in 1895, it is prominent in the standards for accrediting of the North Central and other Associations of Colleges and Secondary Schools, and it is most emphatically brought out in the recent joint recommendations of the Committee of Seventeen on the Professional Preparation of High School Teachers. We are nearing the ideal announced long ago for American education: the teacher shall always be in scholarship and professional training at least four years ahead of his most advanced pupils.

The college is peculiarly and obviously the institution in which to develop teachers and leaders of a kind the State needs. The equipment and faculty are adequate to give the academic training—it would cost much to duplicate them elsewhere—and teachers, especially high-school teachers, need all they can learn. In the better colleges and universities there is an atmosphere of work, research and leadership which does much to develop scientific power and professional confidence.

The College of Education in the University of Colorado is calculated and its course of study is designed to prepare and inspire a large number of the students of the College of Liberal Arts to enter the service of the State in education. The work proceeds upon the assumption that only those will accomplish much as educators, who have in general as a minimum of preparation that liberal acquaintance with knowledge and culture for which the better colleges stand. The prospective teacher must study the things he expects to teach, and related things, long enough and fully enough to be something of an authority. And then, he should know thoroughly the nature, aims and tendencies of society, the nature, possibilities and rights of the individual, and the technique of helping him to learn his personal and social opportunities and responsibilities.

The minimum requirement for the B.A. degree and the Bachelor's Diploma in Education is 120 units, that is four years of work, which must include the following:

English Language	10 units
Classics and Mathematics, Mathematics and Science or Science and Classics	15 units
History or Economics	6 units
Psychology (General and Educational)	6 units
History of Education	6 units
Principles of Education	6 units
Principles of Teaching	2 units
Practice Teaching	4 units
Philosophy or Sociology or additional Education or Psychology	6 units
Group Electives, major and minors (subjects the student expects to teach)	50 units

THE SCHOOL OF SOCIAL AND HOME SERVICE.

This school has been organized for young women who may wish to include in their studies such information as will be useful (a) for intelligent home-keeping, (b) for social service, and (c) for the profession of nursing. Bacteriology, physiology and hygiene, and dietetics are of fundamental value for all three classes of students. Courses in economics and sociology are included for those who may anticipate social service; and the principles of nursing, for women who may have in view the profession of trained nurse. The full course of study as at present arranged counts for two of the four years of study required for an academic degree. The school was opened September, 1912.

Preliminary Course for Nurses.

A preliminary course for nurses is offered lasting but one semester, and a semester's credit toward the degree Graduate Nurse is allowed by several hospitals for the completion of this preliminary course. The preliminary course does not count toward an academic degree. It serves, however, to reduce by five months the nurse's period of apprenticeship in hospital training.

WORK OF THE STATE GEOLOGICAL SURVEY.

The Sixteenth General Assembly created a State Geological Survey. The head of the Department of Geology of the State

University was made State Geologist and the office of the Survey was located at the University.

The Eighteenth General Assembly appropriated \$15,000 per year for the biennial period. The University has given the Survey free use of office room, instruments, laboratories, library and other facilities.

The Survey has published two reports. The first (September, 1909) contains the following papers:

"The Main Tungsten Area of Boulder County, Colorado," by R. D. George, with notes on the Intrusive Rocks by R. D. Crawford.

"The Montezuma Mining District of Summit County, Colorado," by H. B. Patton.

"The Foothills Formations of North Central Colorado," by Junius Henderson.

"The Hahns Peak Region of Routt County, Colorado," by R. D. George and R. D. Crawford.

The second (August, 1910), contains two bulletins:

"A Preliminary Report on the Geology of the Monarch Mining District, Chaffee County, Colorado," by R. D. Crawford.

"The Geology of the Grayback Mining District, Costilla County, Colorado," by H. B. Patton.

During the field season of 1910 the work begun in the Monarch-Garfield area was completed and extended into the Tomichi District, under the direction of Prof. R. D. Crawford. A total of 117 square miles has been mapped topographically and geologically, and the final results of the investigation are now in the hands of the printer.

A party under the direction of Prof. R. D. Crawford, with Mr. R. C. Coffin in charge of the topographic work, spent the field seasons of 1911 and 1912 in the Goldbrick district, near the town of Ohio, in Gunnison County. Mr. P. G. Worcester was in charge of the stratigraphic work during the second season. About sixty square miles have been mapped topographically and geologically, and a report on the geology of the region is in preparation.

A party from the State School of Mines under the direction of Dr. H. B. Patton, spent the summers of 1910 and 1911 in the field about Alma. Fifty-seven square miles have been

thoroughly mapped, both topographically and geologically, and the general and economic geology and character of the ore deposits have been thoroughly studied. The report, with both topographic and geologic maps, is now in the hands of the printer.

Rapid reconnaissance work was carried on in Routt, Grand, and Jackson Counties along the Rabbit Ear Range during the summer of 1911, by Prof. Junius Henderson, Prof. F. F. Grout, and Mr. P. G. Worcester. About 180 square miles was mapped. The general geology of the area was studied, and special attention was given to economic features. The report is practically completed, and will probably form a part of the forthcoming bulletin.

During the summer of 1911, over 200 mineral springs of Colorado were visited, their geological surrounding examined, and samples of the water were taken for analysis. Assistant Prof. Harry A. Curtis, chemist for the State Geological Survey, has completed the quantitative analysis of the 200 different samples of mineral water, and is now making the calculations of the mineral salts present in the waters. As soon as the calculations are completed it is intended to submit these analyses to medical authorities for a report on the medicinal and therapeutic values of the waters. All this information will be embodied in a bulletin on the mineral waters of the State.

To encourage the study of the geology and mineral resources of the State, the Survey has prepared 200 sets, containing 175 specimens each, of the typical rocks, building stones and non-metallic minerals of the State, and about 200 each of the metallic minerals and ores of the State. The specimens are named, numbered, and labelled and a printed card accompanies each. These collections have been offered to the High Schools of the State on the condition that the School Boards would furnish suitable cabinets for them, and give them proper care. About 90 High Schools of the State have availed themselves of the opportunity to secure the collections. A number of Chambers of Commerce, and Commercial Associations in the mining districts of the State have also been furnished collections.

The State Geologist has ready for the printer a bulletin to accompany the collections. This will also contain much geological and mineralogical material bearing on the resources

of the State, and giving the simpler means of identifying and determining the common minerals, rocks and ores.

Investigation of the clays of the State was begun by Prof. G. M. Butler of the State School of Mines in the summer of 1909. In the summer of 1910 three field parties were sent out, and laboratory work was carried on in Golden and Denver. The clays east of the mountains, and those adjacent to the larger towns in other parts of the State have been carefully studied. The laboratory work is now completed. The records of the tests are now being compiled, and a bulletin to show the chemical and physical properties of the clays, the uses to which they are suited, and the best methods of treating them, will be ready for publication before the end of this biennial period.

A party under the direction of Dr. H. B. Patton of the State School of Mines, has spent the field season of 1912 in the Bonanza district, near Villa Grove. The area has been mapped both topographically and geologically, and a report of the general and economic geology is in preparation.

An investigation of the geological formations and the structural features of the Arkansas Valley, under the direction of Dr. George I. Finlay of Colorado College, has been carried on with a view to determining what becomes of the water of the Arkansas River. The data secured are to be used in defending the water users of the Arkansas Valley in the suit now pending between Kansas and Colorado.

For nearly six years the Survey has been working on a general, a topographic and a geologic map of Colorado. The topographic and general map is now finished, and all the data for the geologic map are in the hands of the engraver. It is confidently expected that both maps will be ready for distribution before the close of the biennial period. The only complete geologic map of the State heretofore published is the old Hayden map, compiled in the seventies. Much new work has been done since that time, and all the latest data have been brought together in the present map.

An explanatory pamphlet intended to serve as a key to the geologic map is in preparation, and will be ready to issue with the map.

A bibliography of the geological, mineralogical and paleontological literature of the State is compiled and ready for publi-

cation. This will include reports, treatises, and other reliable publications on these subjects relating to the State of Colorado.

Additional work on the foothills formations of Colorado has been carried on by Mr. Roy M. Butters, and the result of his investigations will be published as a supplementary report to the "Foothills Formations of North Central Colorado," which appeared in the first report of the Survey.

The Survey has conducted a bureau of information to which any person within the State may send minerals, rocks or other material for identification, and a statement of the possible value of the materials. It is not the intention of the Survey to do assaying, however.

Work has been begun on bulletins descriptive of the general geology and the economic geology of the State. The material for the first of these is almost complete.

An investigation of the building stones is under way, and about thirty different rocks have been subjected to all the tests used to determine the qualities of building stones, and the results have been tabulated. The deposits of material promising for cement are being examined.

The crumbling of walls by alkali and other salts is being studied and the means of protecting walls and preventing ravages is being investigated.

SUMMER SESSION.

The Summer Session, organized in 1904, has been conducted along conservative lines. Courses fully the equivalent in character to those of the academic year have been given by specialists drawn from the resident faculty and from other institutions of recognized standing. Under this policy the growth from year to year has been gradual and uniform, but not pronounced. Starting with an enrollment of 60 in 1904, the attendance reached 249 in 1911, and 305 in 1912. This increase in attendance during a period in which few additions were made to the Faculty, with only a slight advance in the number and variety of courses offered, is significant, proving that there is a demand for a Summer Session, maintaining a high standard.

The strict limitation of the number of courses offered in each department is a serious drawback, as an intending stu-

dent often discovers upon investigation that he can not obtain the kind and amount of work he desires. A more serious result of this limitation is that the average student who attends here, in a summer or two exhausts the possibilities of our school in his line of work. Thus the University loses, to a large extent, the important benefits which accrue to an institution from the sentiment of loyalty and hearty support on the part of students who return year after year, in the assurance that courses will be offered suited to their degree of advancement. The obvious conclusion is that a considerable increase in the number of courses is essential to the best results. The experience in summer sessions of other universities is that a noticeable increase in enrollment promptly follows an extension in the number of courses.

In view of the unusual advantages of a cool summer climate and attractive scenery possessed by Boulder, it would seem that under favorable conditions in other respects, the Summer Session enrollment should soon approximate that of the regular year, as is the case in some other Universities not so fortunately situated as ours. But, as a preliminary to this desirable condition, not only must adequate courses, carefully adapted to the needs of the students, be offered, but a knowledge of these opportunities for study under the peculiarly favorable conditions which obtain here, must be disseminated through legitimate means of publicity. This could be done if it were possible for this important branch of the University's work to share to a larger extent in the revenues of the University. Nor should the immediate expenditure required to serve these ends be viewed with reference to the Summer Session alone, as the ultimate results would not fail to be reflected in the University as a whole. Not infrequently a student decides to complete a regular course in an institution to which he was first drawn by the opportunities for summer study.

There is another point of view to be considered. Many of the students of the Summer Session are men and women who are holding responsible positions in educational or other professional lines. They have a commendable ambition to fit themselves for a large sphere of usefulness, while circumstances prevent their attendance at the University during the academic year. A ready response to the needs of such a constituency is in accord with the

policy of the University made effective in other lines. The Regents, recognizing the value of the Summer Session to the cause of education, have therefore directed that plans be formulated looking toward an enlargement of its scope.

COLLEGE OF ENGINEERING.

In the past two years several additional instructors have been appointed and substantial progress has been made in increasing the character and efficiency of the instruction. The equipment in the College of Engineering has been materially increased by the addition of a complete laboratory for road materials testing, and by the acquisition of the Ainsworth Electrical Standardizing Laboratory.

Instructional Force.

The following appointments have been made during the past two years: Whitney C. Huntington, B.S. (C.E.) (Colorado), Instructor in Civil Engineering, September 1, 1911; Carl M. Duff, B.S. (C.E.) (Colorado), Instructor in Engineering Mathematics, September 1, 1911; Rex E. Edgecomb, B.S. (C.E.) (Iowa State College), Instructor in Civil Engineering, September 1, 1911; Charles D. Fawcett, B.S. (E.E.) (Colorado), Instructor in Electrical Engineering, September 1, 1911; Frank S. Bauer, B.S. (M.E.) (Illinois), Instructor in Mechanical Engineering, September 1, 1911; Herbert D. McCaslin, B.S. (M.E.) (Purdue), Instructor in Mechanical Engineering, September 1, 1911; Frank L. Brown, B.S. (C.E.) (Colorado), Instructor in Civil Engineering, September 1, 1912; Lynn R. Leonard, B.S. (E.E.) (Colorado), Instructor in Electrical Engineering, September 1, 1912; Charles G. Martensen, B.S. (M.E.) (Kansas), Instructor in Mechanical Engineering, September 1, 1912.

The following members of the faculty have resigned during the past two years: George L. Sullivan, M.E. (Colorado), Instructor in Mechanical Engineering, resigned June, 1911, and was appointed Assistant Professor of Mechanical Engineering in Montana Agricultural College; Edward C. Stocker, B.S. (C.E.) (Wisconsin), Instructor in Civil Engineering, resigned June, 1911, and was appointed Professor of Railway Engineering in the Engineering College at Shanghai, China; Ollison Craig, B.S.

(M.E.) (Illinois), Instructor in Mechanical Engineering, resigned in June, 1911, and was appointed Engineer with U. S. Government Timber Testing Station; Siebelt L. Simmering, B.S. (M.E.) (Colorado), Instructor in Mechanical Engineering, resigned June, 1912, and was appointed Fellow in Engineering in the University of Illinois; Rex E. Edgecomb, B.S. (C.E.) (Iowa State College), resigned June, 1912, and was appointed Instructor in Civil Engineering in Oregon Agricultural College; Joseph B. Morrill, B.S. (E.E.) (Colorado), Instructor in Electrical Engineering, resigned June, 1911, to enter active practice; Charles D Fawcett, B.S. (E.E.) (Colorado), Instructor in Electrical Engineering, resigned June, 1912, to enter active practice.

Civil Engineering Department.

The instruction in this department has been materially strengthened by the appointment of an additional instructor and by the increase in equipment. The efficiency of instruction has been considerably increased by some minor changes in the course. Considerable commercial testing has been done, and increased facilities should be provided. A new Road Materials Testing Laboratory has added materially to the laboratory facilities.

Electrical Engineering Department.

The instruction in the Electrical Engineering Department has been made more efficient by reason of minor changes in the curriculum and by a material increase in the equipment. In June, 1912, Mr. A. W. Ainsworth entered into an agreement with the Regents whereby the electrical standardizing laboratory, that he had established at a cost of more than \$8,000, was moved to the University and became available for use as a students' laboratory, a research laboratory and an electrical standardizing laboratory. Mr. Ainsworth was appointed research assistant in Electrical Engineering, and gives his whole time to the work of the department. This additional equipment and assistance will make it possible for the department not only to give more efficient courses but to take up research work and to carry on an electrical standardizing laboratory.

Mechanical Engineering Department.

The completion of the new Power House has materially increased the laboratory facilities and has resulted in a decided increase in the efficiency of instruction. The instruction has been strengthened by several minor changes in the course.

Chemical Engineering Department.

The increase in the number of students in the Chemical Engineering Department has shown that there is a demand for men that are equipped to go into the industries in which a knowledge of chemistry is of prime importance. In addition to the course in Chemical Engineering there should be offered a course in Industrial Chemistry in which students could take work in general Engineering in addition to a large amount of Chemistry and allied sciences. The course in Chemical Engineering has been changed to more nearly meet the needs of practice by the omission of shop work and by the addition of courses in Surveying, Engineering Contracts, Assaying, etc.

General Engineering Drawing.

The work in this department has been very satisfactory. An additional assistant has been provided and the courses of instruction in Mechanical Drawing and Descriptive Geometry have been materially strengthened.

Engineering Mathematics.

The results obtained in the Department of Engineering Mathematics have shown that instruction in mathematics for engineering students should be given by a separate department in charge of men that are entirely familiar with the needs of the engineer.

Engineering Language.

The requirement of six semester hours of Foreign Language and four hours of Rhetoric in the freshman year has given most excellent results. The instruction in Rhetoric has been especially satisfactory.

Chemistry.

The entrance requirement of one unit of Chemistry is no longer demanded except for students entering the Chemical

Engineering Department. The requirements for graduation in the Civil, Electrical and Mechanical Engineering Departments have been changed so that all students must take ten hours of General Inorganic Chemistry in the freshman year; Qualitative Analysis is not required.

Publications.

The following books, papers and reports have been written by members of the Faculty of the College of Engineering during the past two years:

Dean Milo S. Ketchum:

"The Design of Walls, Bins and Grain Elevators," Second Edition (book). McGraw-Hill Book Company, 1911.

"The Design of Mine Structures" (book). McGraw-Hill Book Company, 1912.

"The Design of Steel Mill Buildings," Third Edition (book). McGraw-Hill Book Company, 1912.

"Value of a Technical Education." Colorado Engineers' Magazine, 1912.

"Notes on Stresses in Simple and Constrained Beams." University of Colorado Journal of Engineering, No. 7, 1911.
Reports for Numerous Engineering Works.

Professor Herbert S. Evans:

"The University Power Plant." University of Colorado Journal of Engineering, 1910-1911.

"The College of Engineering in the Service of the State." Colorado Engineers' Magazine, No. 2, 1912.

"The Ainsworth Laboratory." In various Publications.

Professor S. Epstein:

"Derivative Domains of Rationality." American Journal of Mathematics, Vol. 34, 1911.

Assistant Professor C. C. Williams:

"Raising a Viaduct Under Traffic." University of Colorado Journal of Engineering, No. 7.

"Pressure on Grain Bins." University of Colorado Journal of Engineering, No. 8.

"Location of Irrigation Canals." Trans. Am. Soc. C.E., Vol. LXXIV.

"Disposal of Sewage by Irrigation." Engineering Record, Vol. LXV, February 24, 1912.

"Municipal Water Supplies of Colorado." Bulletin published by the University of Colorado.

Assistant Professor D. R. Jenkins:

"Some Modern Forms of Electric Illuminants." University of Colorado Journal of Engineering, No. 8.

"Progress in Lighting." Read before University of Colorado Scientific Society, January, 1912.

Mr. G. W. Smith:

"Engineering Mathematics in the Freshman Year." University of Colorado Journal of Engineering, No. 7, 1910-1911.

Graduates of the College of Engineering Appointed to University Positions.

The following graduates of the College of Engineering have been appointed to, and are now holding positions as follows:

Charles C. Cochran, B.S. (M.E.) 1906, Assistant Professor of Machine Drawing, University of Kansas1906 to date

John C. Fitterer, B.S. (C.E.) 1904, C.E. 1912, Professor of Civil Engineering, University of Wyoming1908 to date

Howard C. Ford, B.S. (C.E.) 1904, C.E. 1907, Instructor in Civil Engineering, University of Colorado, 1904 to 1907; Assistant Professor of Irrigation Engineering and Surveying, Iowa State College 1907 to 1911; Associate Professor of Civil Engineering, Iowa State College.....1911 to date

Frederick W. Doolittle, B.S. (C.E.) 1907, Instructor in Theoretical and Applied Mechanics, University of Illinois, 1908-1909; Instructor in Civil Engineering, University of Colorado, 1909-1910; Assistant Professor of Mechanics, University of Wisconsin..1910 to date

- Harry C. Gardner, B.S. (C.E.) 1906, C.E. 1909, Instructor in Civil Engineering, University of Pennsylvania1909 to date
- George I. Gay, B.S. (C.E.) 1909, C.E. 1912, Instructor in Civil Engineering, University of Colorado, 1909-1910; Instructor in Civil Engineering, University of Illinois, 1910-1911; Instructor in Civil Engineering, University of California.....1911 to date
- Whitney C. Huntington, B.S. (C.E.) 1910, C.E. 1912, Assistant in Civil Engineering, University of Colorado, 1910-1911; Instructor in Civil Engineering, University of Colorado.....1911 to date
- Joseph B. Morrill, B.S. (E.E.) 1910, Instructor in Electrical Engineering, University of Colorado.....1910-1911
- David R. Jenkins, B.S. (E.E.) 1904, E.E. 1907, Instructor in Electrical Engineering, University of Colorado, 1905 to 1908; Assistant Professor of Electrical Engineering, University of Colorado...1908 to date
- Harry J. Kesner, B.S. (C.E.) 1907, Instructor in Bridge Engineering, University of Minnesota, 1907 to 1909; Instructor in Civil Engineering, University of California 1909 to 1911; Assistant Professor of Civil Engineering, University of California.....1911 to date
- Fred H. Kroger, B.S. (E.E.) 1904, Instructor in Electrical Engineering, Cornell University.....1906 to date
- Harvey E. Murdock, B.S. (M.E.) 1906, M.E. 1908, C.E. 1911, Instructor in Theoretical and Applied Mechanics, University of Illinois1906 to date
- Guy W. Smith, B.S. (E.E.) 1908, M.S. 1910, Instructor in Engineering Mathematics, University of Colorado1909 to date
- Siebelt L. Simmering, B.S. (M.E.) 1910, M.E. 1911, Instructor in Mechanical Engineering, University of Colorado, 1910 to 1912; Fellow in Mechanical Engineering, University of Illinois.....1912 to date

- Floyd H. Millard, B.S. (C.E.) 1910, Research Assistant in Engineering, University of Illinois 1910 to 1912; Instructor in Theoretical and Applied Mechanics, University of Illinois.....1912 to date
- Clement C. Williams C.E. 1909, Instructor in Civil Engineering, University of Colorado 1907-1909; Acting Professor of Civil Engineering, University of Colorado, 1909-1910, and Assistant Professor...1910 to date
- Alfred P. Poorman, C.E. 1909, Assistant Professor of Mechanics, Purdue University.....1909 to date
- George L. Sullivan, M.E. 1910, Instructor in Mechanical Engineering, University of Colorado, 1908 to 1911; Assistant Professor of Mechanical Engineering, Montana State College1911 to date
- Royal W. Sorenson, B.S. (E.E.) 1905, Professor of Electrical Engineering, Throop Polytechnic Institute1910 to date
- Frank Rank, B.S. (E.E.) 1910, Instructor in Electrical Engineering, Rensselaer Polytechnic Institute.1911 to date
- Harland C. Woods, C.E. 1911, Instructor in General Engineering Drawing, University of Colorado....1909 to date
- Herbert B. Dwight, B.S. (E.E.) 1904, Associate Professor of Mechanical Engineering, University of Oklahoma1911 to date
- Charles S. Rowe, B.S. (C.E.) 1900, Professor of Drawing, University of Texas.....1909 to date
- Frank L. Brown, B.S. (C.E.) 1911, Instructor in Civil Engineering, University of Colorado.....1912 to date
- Ivan C. Crawford, B.S. (C.E.) 1912, Instructor in Civil Engineering, University of Colorado.....1912 to date
- Charles D. Fawcett, B.S. (E.E.) 1911, Instructor in Electrical Engineering, University of Colorado.....1911-1912
- Leonard C. Jordan, B.S. (C.E.) 1906, C.E. 1910, Professor of Civil Engineering, Heffley School, New York City1911 to date

Lynn R. Leonard, B.S. (E.E.) 1912, Instructor in
Electrical Engineering, University of Colorado...1912 to date

Graduates of the College of Engineering in Commercial Positions.

All the graduates of the Electrical Engineering Department during the past two years immediately after graduation have been offered positions with the General Electric Company, Schenectady, N. Y., the Westinghouse Manufacturing Company, Pittsburg, Pa., the Western Electric Company, Chicago, Ill., Fairbanks-Morse Company, or with other companies of equal grade. Electrical Engineering graduates also obtain positions with the signal departments of railroads, with power development companies and in other commercial positions. There is a demand for more electrical graduates than the University can supply.

The graduates of the Civil Engineering Department have been very successful in securing positions with important bridge companies, in the bridge and building departments of railways, in the engineering departments of railways, with the U. S. Government in the reclamation service and the geological service, in municipal and sanitary engineering positions and with consulting engineers. The demand for Civil Engineering graduates is much greater than the supply and the opportunities in this field are unexcelled.

The graduates of the Mechanical and Chemical Engineering Departments have found employment with the Pennsylvania Railroad Company, the Santa Fe Railroad, with the Allis-Chalmers Company and with other companies of equal rank, also with manufacturing concerns, chemical works, beet sugar factories, and in other commercial positions. There has been a demand for more men in both of these departments than the University has been able to furnish.

Many of the former graduates of the College of Engineering have now reached positions of responsibility and prominence in engineering operations, which fact, together with the improved standards of instruction, has materially advanced the standing of the institution.

Engineering Research.

The following research work has been conducted during the past two years:

Civil Engineering Department.

Work Completed or in Progress.—The Department has carried on investigations along the following lines, mostly in connection with thesis work.

1. Bond Stress of Steel and Concrete.
2. Tests of Colorado Building Stone.
3. The study of Boulder, Colorado, Sewerage.
4. Tests of Old Timber Stringers.
5. Tests of Actual Stresses in a Railway Bridge.
6. Compilation of Data on Water Supplies in Colorado.
7. Tests of the Effect of Oil on the Strength of Reinforced Concrete Beams.
8. Tests of Road Building Materials.

Timber Testing Station.—The U. S. Department of Agriculture, Division of Forestry, in cooperation with the University established a Timber Testing Station in 1908 in connection with the laboratory of Applied Mechanics of the Civil Engineering Department. In addition to the engineering staff of the Civil Engineering Department, the Forest Service maintains at the laboratory an experienced timber testing engineer with two engineering assistants. All the facilities of the laboratory are available for the purpose of instruction and investigation by the department. Varied tests of many different kinds of timber are constantly in progress. The following tests have been completed by the station:

1. Tests of Telephone Poles, including comparisons of fire-killed lodge pole pine and Engleman spruce with standard western cedar.

2. Tests of Round Timbers, including comparisons of six species of coal mine caps and props, 5½ inches in diameter by 6 feet and 8 feet long, tested dry and green for comparison; and round beams 16 feet long and 8 inches, 10 inches and 12 inches in diameter, of lodge pole pine, fire-killed and green.

3. Preparation of Panels of Different Kinds of Native Timbers.

4. Determination of Weight per Cubic Foot for Fence Posts for Routt National Forest.

5. Numerous tests to determine properties of timber.

These tests have been conducted in accordance with the most approved methods and form a part of the work of the Forest Service covering the whole United States.

Road Materials Testing Laboratory.—A Road Materials Testing Laboratory, equipped with apparatus necessary to make commercial and special tests of road materials, is operated in connection with the Applied Mechanics Laboratory of the Civil Engineering Department. This laboratory is operated in co-operation with the State Highway Commission and tests have been made of many of the different road building materials in the State. Practically nothing has been done in connection with materials for building roads in Colorado and the results obtained in this laboratory will prove of material benefit to the State.

Electrical Engineering Department.

Work Completed or in Progress.—The following lines of work have been carried on under the direction of the department during the past two years, mostly in connection with thesis work:

1. Investigation of Life, Candle Power and General Characteristics of Various Types of Incandescent Lamps.

2. Investigation of Relative Efficiencies and Operating Characteristics of Different Makes of Electric Motors.

3. Tests on Operating Conditions of Denver and Interurban Single Phase Electric Railway.

4. Efficiency and Load Tests on Electrical Equipment of Colorado and Southern Shops in Denver.

5. Investigations with High Frequency and High Voltage Alternating Currents.

6. Experimental Tests and Comparison of Various Types of Electric Meters.

7. Investigation on the Electrification of a Part of the "Moffat Road".

8. The Investigation of Carbon Resistances Under Pressure.

The Ainsworth Laboratory.—This laboratory was built up by Mr. A. W. Ainsworth primarily for the calibration and repair of electrical measuring instruments. The equipment is very complete consisting of the highest grade of standardizing apparatus and a number of very expensive special machines, electrical and mechanical. By the terms of the agreement with Mr. Ainsworth

his services have been secured as Research Assistant in Electrical Engineering and the laboratory equipment will become the property of the Department. The Professor of Electrical Engineering is Director of the Standardizing Laboratory. It is the primary object of this branch of the College of Engineering to serve the power companies and industrial organizations in this and surrounding States in the calibration and repair of all types of electrical measuring instruments and other electrical and mechanical apparatus at a minimum cost. Original investigation will also be carried on and special types of apparatus constructed for the University.

Mechanical and Chemical Engineering Departments.

Work Completed or in Progress.—The Departments have completed the following lines of investigation during the past two years:

1. Analysis of More than 100 Samples of Coal.
2. Tests of Domestic Heating.
3. Investigation of Gasolenes.

Department of Architecture.

A Department of Architecture should be established. Most of the work required for the course in Architecture is now given in the other departments and it will be necessary only to add those special courses that are peculiar to the profession of architecture. The surplus funds resulting from the Colorado State Architects' License Law are to assist in maintaining a Department of Architecture in the University. As a result of this law there is at present approximately \$4,000 in the hands of the State Treasurer available for the support of a Department of Architecture, and approximately \$700 will be added each year. There is no School of Architecture of standing nearer than that of the University of Illinois, and a course in Architecture in the University of Colorado will meet a very pressing need.

SCHOOL OF MEDICINE.

The Constitutional Amendment permitting the University to teach the last two years of the Medical course in Denver was adopted at the general election in November, 1910. Preparations for the removal of this part of the course to Denver were immediately begun. The building at 1307 Welton Street was leased

for a term of three years and extensive changes and improvements were made to fit it for occupancy by the Medical Department on January 1, 1911.

At the same time, in accordance with the agreement mentioned in the last Biennial Report, the Denver and Gross College of Medicine was completely merged with the University. The Medical Department of the University has thus become the only Medical School teaching the entire curriculum between the Missouri River and the Pacific Coast.

Standing of the Medical School.

The School is classed in Grade "A" by the Council upon Medical Education of the American Medical Association which makes thorough periodical inspections for the purpose of this classification. Only sixty of the one hundred and eighteen medical schools in the United States are so rated.

Through its Dean, the School has taken an active part in the present movement toward raising the standards of Medical Education and much has been effected. Dean Harlow was President of the Association of American Medical Colleges in 1911-12 and is now a member of its Council.

Faculty Changes.

The Faculty was increased January 1, 1911, by addition of the following former members of the Faculty of the Denver and Gross College of Medicine:

WILLIAM C. BANE, M.D.

Professor of Otology.

JAMES M. BLAINE, M.D.

Professor of Dermatology and Venereal Diseases.

MELVILLE BLACK, M.D.

Professor of Ophthalmology.

SHERMAN G. BONNEY, M.A., M.D.

Professor of Medicine.

T. MITCHELL BURNS, M.D.

Professor of Obstetrics.

F. GILLET BYLES, M.A., M.D.

Professor of Hygiene.

SAMUEL B. CHILDS, M.A., M.D.

Professor of Anatomy.

UNIVERSITY OF COLORADO.

DAVID H. COOVER, M.D.

Professor of Ophthalmology.

WILLIAM H. DAVIS, M. D.

Professor of Dermatology and Venereal Diseases.

LEONARD FREEMAN, B.S., M.A., M.D.

Professor of Surgery.

JOSIAH N. HALL, B.S., M.D.

Professor of Medicine.

SAMUEL D. HOPKINS, M.D.

Professor of Neurology and Psychiatry.

HORACE G. HARVEY, B.A., M.D.

Professor of Surgery.

THOMAS H. HAWKINS, M.A., M.D., LL.D.

Professor of Surgery (Gynecology and Abdominal Surgery.)

EDWARD C. HILL, M.S., M.D.

Professor of Chemistry (Toxicology).

JOSEPH C. HUTCHISON, M.S., M.D.

Professor of Obstetrics.

WALTER A. JAYNE, M.D.

Professor of Surgery (Gynecology and Abdominal Surgery.).

MOSES KLEINER, M.D.

Professor of Therapeutics.

ROBERT LEVY, M.D.

Professor of Laryngology and Rhinology.

FRANCIS H. McNAUGHT, M.D.

Professor of Obstetrics.

WILLIAM C. MITCHELL, M.D.

Professor of Bacteriology.

GEORGE B. PACKARD, M.D.

Professor of Surgery (Orthopedic Surgery).

HOWELL T. PERSHING, M.S., M.D., LL.D.

Professor of Neurology and Psychiatry.

JAMES H. PERSHING, B.A.

Professor of Medical Jurisprudence.

CHARLES A. POWERS, M.A., M.D.

Professor of Surgery (Clinical Surgery).

EDMUND J. A. ROGERS, M.A., M.D.

Professor of Surgery.

WILLIAM J. ROTHWELL, M.D.

Professor of Medicine.

HENRY SEWALL, Ph.D., M.D.
Professor of Medicine.

CHARLES S. SHOLLENBERGER, M.D.
Professor of Medicine (Pediatrics).

GEORGE H. STOVER, M.D.
Professor of Roentgenology.

JAMES C. TODD, B.Ph., M.D.
Professor of Pathology.

CHARLES B. VANZANT, M.D.
Professor of Physiology.

HERBERT B. WHITNEY, B.A., M.D.
Professor of Medicine (Pediatrics).

FROST C. BUCHEL, M.D.
Assistant Professor of Surgery.

Other appointments to the Faculty are:

ARTHUR J. MARKLEY, D.D.S., M.D.
Professor of Dermatology.

WILLIAM H. SHARPLEY, M.D.
Professor of Medicine (Contagious Diseases).

HOMER C. WASHBURN, B.S., Ph.C.
Professor of Pharmacy.

AUBREY H. WILLIAMS, M.D.
Assistant Professor of Surgery (Clinical Surgery).

PHILLIP HILLKOWITZ, B.S., M.D.
Instructor in Medicine (Serum Therapy).

CLARENCE B. INGRAHAM, B.Ph., M.D.
Instructor in Obstetrics.

TRACY R. LOVE, B.Ph., M.D.
Instructor in Physiology and Pharmacology.

THOMAS F. WALKER, M.D.
Assistant in Pathology.

The following promotions and changes in title have been made during the past two years:

Samuel B. Childs, M.D., Professor of Anatomy, to be Professor of Roentgenology.

Carbon Gillaspie, M.D., Instructor in Anatomy, to be Professor of Anatomy.

Alvin R. Peebles, M.D., Professor of Medicine (Theory and Practice) to be Professor of Preventive and Experimental Medicine.

Jacob Campbell, M.D., Instructor in Surgery, to be Assistant Professor of Surgery.

Edward F. Dean, M.D., Professor of Anatomy, to be Assistant Professor of Surgery (Clinical Surgery).

William C. Bane, M.D., Professor of Otology, to be Professor of Oto-laryngology.

John M. Foster, M.D., Professor of Otology, to be Professor of Oto-laryngology.

Robert Levy, M.D., Professor of Laryngology and Rhinology, to be Professor of Oto-laryngology.

A number of resignations from the Faculty have been accepted:

Thomas H. Hawkins, M.A., M.D., Professor of Surgery (Gynecology and Abdominal Surgery).

Edward C. Hill, M.S., M.D., Professor of Chemistry (Toxicology).

Charles F. Andrew, M.D., Professor of Materia Medica and Therapeutics.

James M. Blaine, M.D., Professor of Dermatology and Genito-Urinary Diseases.

Eugene H. Robertson, Ph.M., M.D., Lecturer on Electro-Therapeutics.

William A. Jolley, M.A., Instructor in Pharmacology.

Willard A. White, M.A., M.D., Instructor in Medical Jurisprudence.

It is with regret that the following deaths are announced: In each case the School has suffered a serious loss.

Samuel D. Hopkins, M.D., Professor of Neurology and Psychiatry, February 4, 1911.

Joseph C. Hutchison, M.S., M.D., Professor of Obstetrics, July 9, 1912.

Frank E. Waxham, M.D., Professor of Laryngology and Rhinology, September 4, 1911.

Henry S. Denison, B.A., M.D., Instructor in Medicine, August 24, 1912.

Attendance.

The increased entrance requirements, which were first announced in 1908, and which applied only to the Freshman Class in 1910, have been progressively applied to the succeeding classes, the present Senior Class being the last class which will be graduated under the old requirements. This class totals 53, a number which taxes the present capacity of the building and equipment to the utmost. The other classes are much smaller. It is the usual experience of Medical Schools that attendance falls off about 70 per cent. when entrance requirements are raised from a four-year high-school course to two years of college work. At the University of Colorado the decrease has been only about 60 per cent., compared with the combined attendance in corresponding classes at the University of Colorado and the Denver and Gross College of Medicine the last year before the consolidation of the two schools. The University is to be congratulated upon this excellent record. The loss in numbers is, moreover, more than offset by the higher quality of work done by the students.

Clinical Facilities.

Through the courtesy of the Commissioner of Health, the School is permitted to conduct clinics for two hours each day throughout the academic year at the Denver City and County Hospital; but this privilege is hedged about with restrictions which greatly limit the teaching value of the Hospital. Undoubtedly, if the best work is to be accomplished for the students (and in the long run this means for the people of the State who will some day be the patients of these students) one of two things is absolutely necessary: either the School must own a hospital in Denver large enough to afford ample teaching material; or some arrangement must be perfected whereby, as is the case in Los Angeles, Chicago, Boston, and other large centers, the public hospitals shall be turned over to the University to manage and control for the best interests of the school, the students, and the patients in the hospitals.

In addition to the clinics at the County Hospital above mentioned, the School maintains in Denver a free Dispensary in which approximately 25,000 patients are examined and treated each year. These patients afford an extensive variety of material

for teaching purposes; but it is desirable for the sake of both the patients and students that this enormous volume of work should be done in a less hurried, less crowded atmosphere than is possible in the present cramped and inconveniently arranged quarters.

University Hospital.

Only a few changes have been made in the University Hospital at Boulder during the last Biennial period. Space was taken from the east end of the men's ward to make three small private rooms. The clinical laboratory was removed from the building soon after the last two years of the Medical course were moved to Denver. The laboratory room is now used for an office, while the room formerly occupied by the office is utilized as a private room for patients.

Dr. L. M. Giffin, for many years Superintendent of the Hospital, resigned in April, 1912, and the Board of Regents appointed Dr. W. W. Reed to the place thus made vacant. Following the resignation of Miss Jean McIntosh, September, 1911, Miss Elizabeth Miller was appointed Superintendent of the Training School for Nurses. Miss Miller has recently resigned and at the present time Miss Mabel E. Huntly is acting Superintendent of the Training School.

School of Nursing.

The Medical Faculty has requested that certain changes in the curriculum and management of the Training School be inaugurated. The proposed plan would mark a great advance in training for this most important profession. By this plan the pupil will spend one semester of each year in study, recitations, and laboratory work in the University. The other semester and part of the summer will be spent in actual hospital service, either in the University Hospital or in some other hospital acceptable to the University. The plan thus provides for three times as much class work as is now given in the School of Nursing. It compensates for reducing the time spent in hospital service by providing a better education, and it allows each student a four weeks' vacation each year. A certificate indicating the degree of G.N. (Graduate Nurse) will be given at the expiration of the three years' course. Should the student nurse desire

to take an additional year in the College of Liberal Arts, she may specialize in courses in Sociology and Public Service and at the end of this year receive the B.A. degree.

This plan is more far-reaching than is apparent at first sight. It provides for a graduated three-year course of study; and any student in the University may take any or all of these courses. It is expected that some of the courses will be of the greatest value to students of the College of Liberal Arts and will be particularly useful as preparation for home making and Social Settlement work. Other less fortunately situated hospitals in the state may send nurses to the University for actual class work and still retain the benefits of their service in the hospital.

School of Pharmacy.

The establishment of a School of Pharmacy was authorized by the Board of Regents in April, 1911. The doors were opened for the first time with the beginning of the college year of 1911-12.

The standards for entrance and graduation are the same as those in the best schools of Pharmacy in the United States, and are maintained at the present time by but eight schools, including the University of Colorado.

The school offers three courses of study designed to prepare for the various fields of pharmaceutical activity.

First: A two-year course leading to the degree of Pharmaceutical Chemist (Ph.C.).

Second: A three-year course leading to the degree of Bachelor of Pharmacy (B.Pharm.).

Third: A four-year course leading to the degree of Bachelor of Science in Pharmacy (B.S. in Pharm.).

The School of Pharmacy is housed in a small three-room, brick structure formerly used as an anatomical laboratory. One room is fitted up for a pharmaceutical laboratory and will accommodate twenty students. Another room is used for lectures and recitations and the third for an office and store-room. Since the Department of Pharmacy also gives instruction in Materia Medica and Pharmacy in the School of Medicine, the pharmaceutical laboratory will be over-crowded during the second semester of the present year.

Curriculum.

The curriculum of the Medical School has been carefully revised during the past year and some very material changes have been made. In general the courses have been rearranged with a view to reducing the number of didactic hours to correspond as closely as possible with the recommendations of the Council on Medical Education, with which recommendations the curriculum is now in very close accord. The second object of the revision has been in general to make the Senior year, as nearly as possible, a purely clinical year. To this end much of the didactic work formerly given in the Senior year has been transferred to the Junior year, and some of the work of the latter year has been transferred to the Sophomore year. Certain optional courses have been introduced into the Junior and Senior years for the benefit of students who wish to prepare for special lines of work. Should the experiment with optional courses prove successful, they will be extended to the other two years. A curriculum which requires only the absolutely necessary studies and supplements these with a variety of optional courses offers the student many obvious advantages over the old style "cut and dried" arrangement.

Graduate Study.

Graduate study is now offered to those who are prepared to take it. In the clinical branches graduate courses run throughout the year, so that any physician may come for any number of months to pursue any line of clinical work he may desire. In every case the Faculty insists upon evidence of a sufficient preliminary knowledge, and recommends that a reading course be taken and an examination passed before entering the actual clinical work. This is necessary because of the great variation in fundamental knowledge possessed by applicants. The reading courses are conducted by the heads of the departments concerned, through correspondence.

A graduate course in Ophthalmology, leading to the degree of Doctor of Ophthalmology, was inaugurated last June upon a plan outlined by Professor Jackson. A number of students were enrolled for this course in 1912, and it is believed that there will be a greater number of matriculants next year.

Graduate study in other than the strictly clinical branches can be arranged at any time to meet any need.

University Extension.

The peculiar character of Medical education makes correspondence study impossible, except as it may be used by post-graduate students who desire to review the theory of a subject before undertaking practical work in the clinics. No department of the University has, however, a larger opportunity of service to the people of the State, which is University Extension in its widest and most practical application. A private school may limit its work to the making of physicians, but a medical school supported by the State has larger duties, which include public instruction in health matters, public service, and assistance to physicians.

For the instruction of the public, the School is prepared to furnish popular lectures dealing with such matter as public health, personal hygiene, pure food, and eugenics.

Public service is accomplished chiefly by the newly established Department of Preventive and Experimental Medicine, the work of which is described on another page.

For the assistance of physicians throughout the State, there is at present in course of preparation a collection of specimens, lantern slides and photographs, illustrating various medical subjects, which will be loaned to medical societies and to physicians who are preparing papers upon special subjects. In connection with the study of the animal parasites of the State, mentioned under "Investigations", the School offers, without charge, to assist any physician in the diagnosis of animal parasitic infections. Other means of assisting physicians are planned.

Preventive and Experimental Medicine.

At the June, 1912, meeting of the Board of Regents, Dr. A. R. Peebles was transferred from the Chair of Theory and Practice of Medicine to the then created Chair of Preventive and Experimental Medicine. The new Department thus created has the following ends in view:

1. To aid the physicians and health officers of the State.
2. To provide for the carrying on of research work along the lines indicated by the title.

3. To prepare the way for giving a graduate course in Medicine along the lines of public health leading to a degree of Doctor of Public Health. Similar courses to this proposed course are now being given by Harvard and Johns Hopkins universities and by the universities of Michigan and Wisconsin.

Since the inauguration of this new Department, its efforts have been directed to the study of typhoid fever problems in Colorado. A pamphlet was printed and distributed to physicians, health officers, and such others of the State as could profit by it. In it were briefly discussed the causes and dangers of typhoid epidemics and the protection against the disease afforded by vaccination. The Department prepares anti-typhoid vaccine which is distributed at cost to communities, health officers, and physicians. The interest manifested, together with the number of demands for the vaccine, leads to the belief that the Department meets a real need.

Henry S. Denison Research Laboratory.

Upon the death of Dr. Henry Strong Denison, Instructor in Medicine, which is noted elsewhere in this report, his mother, Mrs. Charles Denison, offered to the University Dr. Denison's laboratory and scientific apparatus upon conditions that the gift be maintained intact and that it be known under the name of the Henry S. Denison Research Laboratory. This gift was accepted by the University after some "understandings and arrangements for maintenance" were effected; and was turned over to the Department of Preventive and Experimental Medicine as the laboratory of this Department. It is now installed in the room in the Medical Building in Boulder formerly known as the South Lecture Room. This room is not adequate to the purpose, but until a new building is provided there is no other place to house the new laboratory.

The Laboratory contains apparatus for investigation in Bacteriology, Pathology, Chemistry, and Clinical Diagnosis. A number of bookcases with books, pamphlets, and journals are included, and these, together with certain books from the University Library are placed in the entry to the room.

With larger quarters and the necessary additions, the Henry S. Denison Research Laboratory will doubtless become one of the strongest departments of the Medical School.

Publications.

The following list indicates the publications and addresses of the Faculty of Medicine during the past two years. The printed books and articles number 125; the additional addresses noted, 19:

William P. Harlow, B.A., M.D., Dean:

President's Address. Association of American Medical Colleges. February 28, 1912.

A Report on Medical Education. Colorado State Medical Society, September 23, 1912. Colorado Medicine, October, 1912.

James R. Arneill, B.A., M.D., Professor of Medicine (Clinical Medicine):

"Cancer of the Stomach." Read before the Colorado State Medical Society, 1910; published in Colorado Medicine.

"Syphilis and Its Treatment by 606." Prowers County Medical Society, Lamar, 1911.

"Duodenal Feeding in the Treatment of Gastric Ulcer." Colorado State Medical Society, Pueblo, 1912.

William C. Bane, M.D., Professor of Oto-Laryngology:

"Retropharyngeal Abscess. Report of Cases." Colorado Medicine, December, 1910.

"Abortive Treatment of Acute Mastoiditis." New York Medical Journal, September 9, 1911.

Melville Black, M.D., Professor of Ophthalmology:

"An Index to the General Blood-Pressure." Journal American Medical Association, July 29, 1911.

Sherman G. Bonney, M.A., M.D., Professor of Medicine:

"Pulmonary Tuberculosis and Its Complications." W. B. Saunders Company, 1912.

"Experience with Pulmonary Tuberculosis During the Last Year. A Clinical Resumé." American Journal of the Medical Sciences, November, 1911.

Clough Turrill Burnett, M.D., Professor of Bacteriology:

"Bacteriological Studies of Milk Supplies of Boulder." First Preliminary Report. University of Colorado Studies, January 14, 1911.

- "An Apparatus for the Preparation of Bacterial Suspensions." *Journal American Medical Association*, January 14, 1911.
- "Functional Tests of the Lungs." Address, Colorado State Medical Society, 1912.
- C. T. Burnett and Charles F. Poe, M.A., Instructor in Chemistry:
"Bacteriological Studies of Milk Supplies of Boulder." Second Preliminary Report. *University of Colorado Studies*, April, 1911.
- T. Mitchell Burns, M.D., Professor of Obstetrics:
"Cesarean Section: Indications and Technic; Report of Twenty-nine Cases." *Journal American Medical Association*, January 13, 1912.
- F. Gillett Byles, M.A., M.D., Professor of Hygiene:
"Climate as a Curative Agent." *New York Medical Journal*, December 31, 1910.
"The Sanitary Schoolroom." *Dietetic and Hygienic Gazette*, October, 1911.
- S. B. Childs, M.D., Professor of Roentgenology:
"The Medico-Legal Aspect of Fractures and Dislocations from an X-Ray Standpoint." *Colorado Medicine*, May, 1911.
"The Importance of the Roentgen Ray in the Diagnosis of Bone Diseases." *New York Medical Record*, January 20, 1912.
"A Comparison of Physical Signs and X-Ray Pictures of the Chest in Early Stages of Tuberculosis" (with Dr. Henry Sewall). *Archives of Internal Medicine*, July, 1912.
"The X-Ray in the Diagnosis of Renal, Biliary and Vesical Calculi." *Denver Medical Times and Utah Medical Journal*, 1910.
"The X-Ray in Bone Tumors." Read before the Colorado State Medical Society, 1912.
- D. H. Coover, M.D., Professor of Ophthalmology:
"Cryptophthalmia with Report of Two Cases." *Journal American Medical Association*, July 30, 1910.
"Resumé of the Operative Treatment for Trachoma." *Ophthalmology*, October, 1912.

Richard W. Corwin, M.D., LL.D., Professor of Surgery:

"Legislation and Health." Under the auspices of State Association for Prevention and Cure of Tuberculosis. Greeley, Colorado, December 13, 1910.

Address. D. A. R.'s Club House, Pueblo, March 9, 1911.

"The Visiting Nurse." Annual meeting of the Colorado State Association for Prevention and Cure of Tuberculosis, January 16, 1911, Denver.

"Welfare Work." Colorado Springs Women's Club, February 18, 1911.

"Colds." State Medical Society, 1911.

"Thirty Years' Experience with Fractures at Minnequa Hospital." Address, American Medical Association, 1911.

"Eugenics on the Railroad." Santa Fe Medical and Surgical Society, Albuquerque, New Mexico, October 4, 1912.

"Eugenics in Surgery." American Railway Surgeons' Association, October 16, 1912, Chicago.

"Hunting Without a Gun." Minnequa Lecture Course, March, 1912.

Leonard Freeman, B.S., M.A., M.D., Professor of Surgery:

"Suprapubic Prostatectomy, with a Method for the Control of Post-operative Hemorrhage." Surgery, Gynecology, and Obstetrics, January, 1912.

"Local Anesthesia in General Surgery." Medical Society of the Missouri Valley, March 18, 1910. Medical Herald, May, 1910.

"Some Remarks on the Buying and Selling of Surgical Cases." Colorado Medicine, February, 1911.

President's Address. Delivered at Colorado Springs, 1910. Colorado Medicine.

"The Treatment of Oblique Fractures of the Tibia and Other Bones by Means of External Clamps." Annals of Surgery, Volume 54, 1911. Read before American Surgery Association, 1911.

"The Diagnostic Value of Distention of the Renal Pelvis Through the Ureteral Catheter." Surgery, Gynecology, and Obstetrics, Vol. X, 1910.

"The Desirability of Abdominal Exploration." Read before Colorado State Medical Society, 1912.

"A Simple and Safe Method for the Performance of Partial Thyroidectomy." Read before State Medical Association of Texas, May 9, 1911. Texas State Medical Journal.

Chapter in the sixth volume of "Keen's System of Surgery." (In press.) Dealing with recent advances in connection with Suppuration, Abscess, Fistula and Sinus, Ulceration and Gangrene.

"Skin Grafting," a monograph. C. V. Mosby & Company. (In press.)

Josiah N. Hall, B.S., M.D., Professor of Medicine:

"Why the General Practitioner Should Study the Surgical Diagnosis of Gastric and Duodenal Ulcer." Journal American Medical Association, January 14, 1911.

"Intestinal Obstruction." American Journal Medical Sciences, November, 1910.

"Tuberculosis Among Physicians." American Journal Medical Sciences, January, 1912.

"A Consideration of the Complications of Appendicitis." Surgery, Gynecology, and Obstetrics, October, 1911.

"The Diagnosis of Mediastinal Growths." Colorado Medicine, July, 1912.

Edward Jackson, M.A., M.D., Professor of Ophthalmology:

"The Ophthalmic Year Book, Vol. VIII." 8 Vol., 455 pp., illustrated. The Herrick Book and Stationery Company, Denver, Colorado.

"Ophthalmic Literature." Vol. I, 1911; Vol. II, 1912.

"Cilio-retinal and Other Anomalous Retinal Vessels." Transactions of American Ophthalmological Society, xii, iii, p. 960.

"The Optometry Question and the Larger Issue Behind It." Journal American Medical Association, July 22, 1911.

"Proper Provision for Teaching Ophthalmology in Medical Schools." Transaction Section on Ophthalmology American Medical Association, 1912.

"Management of Capsule in Cataract Extraction and Afterward." Transactions American Ophthalmological Society, 1912.

"Headache as a Symptom; Its Mechanism and Significance." Colorado Medicine, August, 1912.

"Normal Teaching Regarding Sex." Colorado School Journal, September, 1912.

Walter A. Jayne, M.D., Professor of Surgery (Gynecology and Abdominal Surgery):

President's Address—"Medical Progress." Colorado State Medical Society, September 24, 1912. Published, Journal American Medical Association, October 12, 1912; Colorado Medicine, October 15, 1912.

Robert Levy, M.D., Professor of Oto-laryngology:

"The Tuberculous Tonsil." Journal American Medical Association, October 29, 1910.

"The Etiological Relation of Diseases of the Ear, Nose and Throat to Diseases of the Heart, Lungs and Blood." Transactions of Laryngological, Rhinological and Otological, 1910.

Arthur J. Markley, M.D., Professor of Dermatology and Genito-Urinary Diseases:

"A Consideration of Mild or Obscure Syphilis Based Upon Observations of Its Skin Manifestations." Colorado Medicine, June, 1911.

"The Management of Infantile Eczema." Pediatrics, November, 1911.

"An Unusual Form of Keratoma." Journal of Cutaneous Diseases, December, 1911.

William C. Mitchell, M.D., Professor of Bacteriology:

"The Wassermann Reaction and Its Relation to the Diagnosis, Prognosis, and Therapy of Syphilis." Colorado Medicine, November, 1911.

George B. Packard, M.D., Professor of Surgery (Orthopedics):

"Results Obtained from the Use of Tuberculin in Joint Tuberculosis." American Journal of Orthopedic Surgery, August, 1911.

"Mechanical Treatment of Hip-Joint Disease." American Journal of Orthopedic Surgery, 1912.

"Some of the Causes of Chronic Backache and the Treatment." Colorado Medicine, April, 1911.

Howell T. Pershing, M.S., M.D., LL.D., Professor of Neurology and Psychiatry:

"Treatment of Internal Diseases." Appleton, 1912.

Charles A. Powers, M.A., M.D., Professor of Surgery:

"Primary Sarcoma of the Appendix." New York Medical Journal, January 7, 1911.

"Woody Phlegmon of the Neck" (Reclus). Journal American Medical Association, July 29, 1911.

"Acute Pneumococcus Infections of the Extremities." Annals of Surgery, September, 1911.

"Further Account of a Previously Reported Case of the Ischemic Paralysis and Contracture of Volkmann." Journal American Medical Association, May 11, 1912.

"Sarcoma of the Breast." Colorado Medicine, July, 1912.

"Acute Diverticulitis of the Sigmoid Flexure of the Colon." Annals of Surgery, July, 1912.

"An Unusual Case of Fracture of the Bodies of the Fourth, Fifth and Sixth Cervical Vertebrae with Injury of the Spinal Cord." (With Dr. H. T. Pershing and Dr. W. H. Swan.) Medical Record, April 15, 1911.

Edmund J. A. Rogers, M.A., M.D., Professor of Surgery:

"Mental Influence on Digestion." Denver Medical Times, July, 1911.

"The Influence of the Mental Attitude of the Patient in Surgical Operations." Colorado Medicine, October, 1911.

"Psychotherapeutics—A Working Hypothesis." Denver Medical Times, June, 1912.

"The Necessity of a Knowledge of Psychology in the Practice of Medicine." Colorado Medicine, August, 1912.

"The Influence of Mental Attitude in the Treatment of Diseases of the Organs of Respiration and Circulation." Transactions of the American Climatological Association, 1912.

Henry Sewall, Ph.D., M.D., Professor of Medicine:

"On the Medical Uses of Rectal Infusions." American Journal of the Medical Sciences, October, 1910.

"Henry Newell Martin." A biography. Bulletin, Johns Hopkins Hospital, September, 1911.

"Is There Specific Treatment of Diabetes Mellitus?" American Journal Medical Sciences, September, 1911.

"Clinical Experience with Salvarsan." Colorado Medicine, November, 1911.

"On What Do the Hygienic and Therapeutic Virtues of the Open Air Depend?" Journal American Medical Association, 1912, LVIII, 174.

"Bimanual Palpatory Percussion." Archives of Diagnosis, 1912, Vol. V.

"A Comparison of Physical Signs and X-Ray Pictures of the Chest in Early Stages of Tuberculosis." (With Dr. S. B. Childs). Archives of Internal Medicine, 1912, Vol. X, 45.

"The Physiological Basis of Aesthetics." Popular Science Monthly, 1912, Vol. LXXXI, 61.

C. F. Shollenberger, M.D., Professor of Medicine (Pediatrics):

"How Some Oriental Countries Dispose of Their Dead." Denver Medical Times, June, 1911.

George H. Stover, M.D., Professor of Roentgenology:

"The Radiographer's Property Right in the Radiogram." American Quarterly of Roentgenology, July, 1911.

"Roentgenographic Diagnosis of Ureteral Kinks Causing Intermittent Hydronephrosis." American Quarterly of Roentgenology, August, 1912.

"Why Use the X-Ray?" Denver Medical Times, February, 1912.

"Diagnostic Field of Roentgenology." Colorado State Medical Society, 1911.

"Mediastinal Shadows." Colorado State Medical Society, 1911.

James C. Todd, B.Ph., M.D., Professor of Pathology:

"Clinical Diagnosis." Text book, Second Edition, revised and much enlarged. W. B. Saunders Company, Philadelphia, 1912.

Ross C. Whitman, B.A., M.D., Professor of Pathology:

"Translation, Müller's Sero-Diagnostic Methods." Lippincott & Company, 1912.

"Serum Diagnosis of Cancer with Special Reference to the von Dungern Complement Deviation Test." University of Colorado Medical Bulletin, June, 1912.

"Anaphylaxis." Colorado Medicine, December, 1912.

Herbert B. Whitney, B.A., M.D., Professor of Medicine (Pediatrics):

"Diagnosis in Infancy and Early Childhood." Colorado Medicine, 1911.

Walter W. Reed, M.D., Assistant Professor of Obstetrics:

"Recognition and Management of Moderate Degrees of Pelvic Contraction." Address, Larimer County Medical Society, February 20, 1912.

John W. Amesse, M.D., Instructor in Medicine:

"Hymenolepis Nana (Dwarf Tape-Worm) in American Children." Colorado Medicine, December 15, 1910.

"Some Conclusions from 30,000 Primary Vaccinations." Denver Medical Times, February 1, 1911.

"Certain Septicemias Resembling Yellow Fever." Southern Medical Journal, July, 1911.

"Scurvy Following the Continuous Use of Grape Nuts." Denver Medical Times, April, 1911.

"Responsibilities of the Profession in the Conservation of Child Life." Texas Medical Journal (in press), October, 1912.

"Have We a Specific Against Cerebro-Spinal Meningitis?" Colorado Medicine, July, 1912.

"Hemorrhage in the New Born." Colorado Medicine. (In press).

Henry S. Denison, B.A., M.D., Instructor in Medicine:

"Harmonic Equilibrium of the Glands of the Internal Secretion." Colorado Medicine, March, 1912.

Philip Hillkowitz, B.S., M.D., Instructor in Medicine (Serum Therapy):

"Use of Serum in Hemorrhagic Diseases." Colorado Medicine, 1911, Vol. VIII, 403.

"Cultivation of Treponema Pallidum." Ibid, 1911, VIII., 404.

"Infantile Paralysis: Etiology and Pathology." Pediatrics, 1911, XXIII, 749; Colorado Medicine, 1912, IX, 5.

"Cutaneous Reaction for Syphilis." Colorado Medicine, 1912, IX, 25.

"Chemotherapy in Cancer." Ibid, 1912, IX, 61.

"Diagnostic Value of the Wassermann Reaction." Ibid, 1912, IX, 118.

"Anaphylaxis." Ibid, 1912, IX, 253.

Clarence B. Ingraham, B.Ph., M.D., Instructor in Obstetrics:

"Two Cases of Antepartum Infection." The American Journal of Obstetrics and Diseases of Women and Children, Vol. LXIII, No. 2, 1911.

"Apical Pregnancy." Colorado Medicine, September, 1911.

"The Chamberlens and the Obstetrical Forceps." The American Journal of Obstetrics and Diseases of Women and Children, Vol. LXIII, No. 5, 1911.

"An Analysis of the Course of Labor in 100 Occiput Posterior Presentations." Johns Hopkins Hospital Bulletin, Vol. XXII, No. 238, January, 1911.

"Pernicious Vomiting of Pregnancy." Journal American Medical Association, January 6, 1912, Vol. LVIII, pp. 25-29.

Tracy R. Love, B.Ph., M.D., Instructor in Physiology and Pharmacology:

"Precordial Pain." Denver Medical Times and Utah Medical Journal, August, 1912.

Frank R. Spencer, B.A., M.D., Instructor in Ophthalmology and Oto-laryngology:

"Cerebellar Abscess of Otitic Origin with Report of a Case." Colorado Medicine, August, 1911.

"Recent Observations in the Eye, Ear, Nose and Throat Clinics of Vienna and Berlin." Colorado Medicine, June, 1912.

"Diseases of the Labyrinth with Special Reference to the Fistula Symptom." Laryngoscope, St. Louis, August, 1912.

Rudolph W. Arndt, M.D., Clinical Assistant in Medicine:

"Typhoid Fever with Acute Calculous Cholecystitis." Colorado Medicine, July, 1912.

Charles A. Ferris, M.D., Clinical Assistant in Obstetrics:

"A Case of Splenomegaly Complicated by Pregnancy." *Denver Medical Times and Utah Medical Journal*, April, 1912.

Ora S. Fowler, B.S., M.D., Clinical Assistant in Surgery:

"The Diagnosis of Early Intermittent Hydronephrosis." *Surgery, Gynecology and Obstetrics*, February, 1911.

"The Use of the Cystoscope in Diagnosis and Treatment." *Northwest Medicine*, May, 1912.

"A Further Study of Ureteral Obstruction, with Lantern Slides." Read before American Urological Association, New York City, April 2, 1912. Published in their proceedings.

"The Diagnosis and Treatment of Bladder Papillomata, with Description of the New Fulguration Method." *Colorado and Utah Medical Journal*, October, 1912.

Samuel Fosdick Jones, M.D., Clinical Assistant in Surgery (Orthopedics):

"Bilateral Congenital Dislocation of the Lower End of the Ulna." *American Journal of Orthopedic Surgery*, November, 1911.

"Vertebral Osteo-arthritis (Charcot's Disease of the Spine); report of one case with Radiographs." To be published in *American Journal of Orthopedic Surgery*.

"Osteitis Deformans (Paget's Disease) with report of one case with Radiographs." To be published in *Colorado Medicine*.

G. B. Lingenfelter, M.D., Clinical Assistant in Dermatology:

"Vaccine Therapy in the Treatment of Diseases of the Skin at the Massachusetts General Hospital." (With Harvey P. Tottle, Boston.) *Journal Cutaneous Diseases*, November, 1910.

"A Brief Consideration of Dermatitis Exfoliativa with Report of Case." *Denver Medical Times and Utah Medical Journal*, March, 1912.

George A. Moleen, M.D., Clinical Assistant in Neurology:

"Facial Hemiatrophy." *Journal Nervous and Mental Diseases*, March, 1911.

"Institutional Care of the Insane in Europe." Denver Medical Times, July, 1911.

"Erythromelalgia." Journal American Medical Association, August, 1912.

"Cerebral Localization." Read before State Medical Society, September, 1912.

Bernard Oettinger, M.D., Clinical Assistant in Neurology:

"A Case of Freidreich's Ataxia." Colorado Medicine, July, 1912.

"Humeral Theory of Spasmodic Asthma." To be published by Medical Record shortly.

"Dementia Praecox." Read before Denver County Medical Society.

Adam J. Simpson, M.D., Clinical Assistant in Medicine:

"Report of a Case of Cerebro Spinal Meningitis Treated with Anti-meningitic Serum." Colorado Medicine, February, 1912.

Henry W. Wilcox, M.D., Clinical Assistant in Surgery:

"Benign Cyst of the Long Bones." Colorado Medicine, May, 1912.

"The Sacro-Iliac Joint." Colorado Medicine, September, 1912.

Investigations.

Investigations which have been completed within the past two years, or are now in progress, are:

Pneumococcus Vaccines in the Treatment of Pneumococcic Infections.

Pharmacology of Hexamethylenamine.

Investigation of the Nature of the Waxy Substance of the Tubercle Bacillus.

Study of Skin Reactions as Bearing upon the Diagnosis of Anaphylaxis.

Studies Leading Toward Improvement of the Boulder Milk Supply.

A Study of the Bacterial Increase in Milk for Infant Feeding when left in Thermos Bottles.

A Study of the Animal Parasites of Man in Colorado.

Systemic Blastomycosis, Including Observations on Giant Cell Formation.

Study of Acute Glomerular Nephritis following Injection of Collargol into Pelvis of Kidney.

Simplification of Technique of Miostagmin Reaction.

Malignant Tumors of the Kidney. Comparative study.

Tuberculous Ulcer of Stomach.

Improvement of the Schwartz and McNeil Complement Deviation Method for Diagnosis of Gonococcus Infections.

SCHOOL OF LAW.

The most notable change in the work of the School of Law has been the increased entrance requirements which went into effect in September of this year, notice of which was given in the last biennial report—the change being that two years of College work are now required for admission instead of a high-school education as before.

The altered standard of admission, as was expected, results in a temporary decrease in the number of the entering class, but the higher grade of the School meets to a greater extent, it is believed, than formerly, the demand of the times for better knowledge on the part of the lawyer. The power due to the superior preparation manifest in the entering class has, without disparagement to the less mature students of other years, been noted by the faculty. At the date of this report there are 100 students enrolled, of whom one-third are first matriculations, and three are women.

We report with deep regret the death of three of our lecturers, Regent Ralph Talbot, formerly lecturer on Criminal Procedure, Mr. Hugh Butler, lecturer on Common Law Pleading, and Judge Stuart D. Walling, who was appointed lecturer on Equity Pleading and Practice, but who owing to his elevation to the bench and subsequent ill health was unable to enter upon his duties. Mr. Harry S. Silverstein, an eminent practitioner of Denver, has been appointed in Regent Talbot's stead as lecturer on Criminal Procedure, and Mr. Henry E. Lutz, of Denver, a young man of signal ability and promise, will take Judge Walling's place as lecturer on Equity Pleading and Practice.

A valuable addition to our law library of about one thousand volumes, chiefly reports, was made by the widow of the late Judge C. I. Thomson, of the Colorado Court of Appeals. The gift met a distinct want, but increased library facilities are still a pressing need, and particularly in the way of many of the state reports down to what is known as the Reporter System. Of sentimental, but real value also, was the gift this year by the late Judge C. A. Bennett, of Boulder, of some volumes on Evidence which were of the library of Abraham Lincoln and bear his autograph.

The graduates of the Law School have continued without exception since our last report to take honorable place in the examinations conducted twice a year by the State Board of Bar Examiners for license to practice law in this State.

UNIVERSITY EXTENSION DIVISION.

For a number of years the University of Colorado has been doing Extension work through several of its departments in a somewhat informal way. The establishment of a separate Extension Division was authorized by the Board of Regents in May, 1911, and was formally inaugurated in June, 1912, by the appointment of Loran D. Osborn, Ph.D., as Extension Director and Lecturer, with the rank of Professor of Sociology.

The aim of the Extension Division is to take as many of the advantages of the University as possible out into the State to those who are unable to leave their work and attend the University itself. It is a part of the general movement of our day toward getting things that are worth while directly to the people—the movement that, in the commercial world, has found expression in traveling salesmanship, and, in the field of popular education, has led to the establishment of Chautauquas and lecture courses. University Extension attempts to render this popular service in the interests of cultural education in a more definite and systematic form. Most of the leading Universities of the country are now undertaking such work with good success.

The Extension work at our University is being inaugurated along six related lines. These do not represent distinct departments of organization, but merely forms of activity, leaving the

formal organization into departments to growth and circumstances. The lines of activity are as follows:

Correspondence-Study courses, conducted by the various University departments by means of direct correspondence with the individual students enrolled;

Study Centers, consisting of groups of students, often teachers, who carry on connected courses of study under the direction of accredited instructors;

Lecture Courses and Addresses, sometimes accompanied by collateral reading and study;

Library Extension and an Information Bureau, through which books and information are furnished to the high schools for their debates;

Bulletins of Investigations, making accessible to the public the results of the more important investigations conducted by members of the University Faculty;

Social Centers, in which communities arrange for an "open house" for the discussion of civic questions, the furnishing of entertainment and recreation, and the furthering of concerted action in matters of common interest and welfare.

The first three of these lines of work are conducted in such a way as to lead to University credit for the courses taken, if it is desired.

The Director has found the field wide open for Extension work, and everywhere it is approved and welcomed as an advance step in the Educational progress of the State. High-school graduates who are delayed in attending college; individual teachers in isolated districts, and city teachers in groups; young people who have been forced to drop out of college, and elderly people who never had a chance to go—these and others, detained from attending college by the necessity of making a living, are gladly availing themselves of the opportunities offered by the Extension Division of the University.

The policy was to begin the work in a modest way and develop it to meet the needs of our own State. The enterprise has already so grown as to tax to the utmost the time of the Director, and he could profitably use two or three assistants if he had them. The Director has delivered forty lectures and addresses; a general announcement bulletin of Extension Courses has been published and widely distributed; an Investigation Bulletin on

the Prevention of Typhoid has been published; assistance has been rendered, through the library force, in cataloguing and improving several libraries; one night school and social center has been established; several study classes have been organized, in different centers.

In view of these facts, no argument is needed to prove that Colorado is ready for this work and that great good can be accomplished by means of it. There is almost no limit to what can be done in this great new State with its needs and possibilities. The work can be carried forward as far and as fast as the resources placed at the disposal of the Department will permit. The fees will for the present cover the expense of instruction in the various branches, as the members of the University Faculty and other instructors have generously consented to conduct correspondence and study center courses. As the work grows, special Extension instructors will be needed. But the work needs at once a special appropriation of at least \$10,000.00 for the next biennial period, to provide for the salaries of the Director, one assistant, and a stenographer, which is the minimum force that can meet the growing demands, and to help pay traveling expenses, printing and postage, books for the Extension classes and incidental expenses. Without such an appropriation this new and promising field cannot be adequately developed.

LIBRARY.

A summary of the work of the Library during the biennial period 1910-1912 includes the following:

Total number of books circulated was 29,034. These figures include books borrowed by students, members of Faculty, extension loans, and books deposited in branch departmental libraries. Fourteen hundred books were placed on "Reserve" shelves for use of students for required reading. No record of use of these books has been kept, although some have been used by ten different students in one day.

Eleven thousand one hundred and sixty books have been catalogued, approximately 32,000 cards have been typewritten for the card catalogue. Volumes bound number 1,811, rebound, 267, and repaired at library, 580. Total accessions for the two years number 11,487.

Purchases include Nelson's Encyclopaedia, perpetual loose-leaf edition; Encyclopaedia Britannica, eleventh edition; 567 volumes to complete the National Reporter System; Rotuli Parliamentorum; Harvard Classics, and numerous volumes of periodicals to fill gaps in sets.

Principal gifts of books have been the "C. I. Thomson Collection" of law books, numbering nearly one thousand volumes; three autograph volumes from President Abraham Lincoln's library; one hundred medical books presented by Mr. Franklin C. Hills.

Crowded conditions in the library have resulted in growth of the departmental libraries. Law and Geology libraries have been rearranged to facilitate use, and Engineering, Physics and Education have been provided with additional shelving—the latter library will be the second to have a special card catalogue, which is near completion. The Medical library has grown considerably, and is segregated in the North balcony of the library building.

The Library maintains a bureau of information, answering any communication from any citizen of Colorado. The policy of lending books to high-school students of the State is being continued in co-operation with the Extension Department. Requests from the Fort Morgan Public School Library, and from the Fort Morgan Public Library for assistance in reorganizing and reclassifying their collections have been received and granted. Other similar negotiations are pending.

Efforts to be of service in extension work have not been permitted to interfere with intensive work for the student body. Freshmen in English courses are now conducted through the Library, at the beginning of the school year, under guidance of the Librarian, and the arrangement, classification, customs and use of the Library are explained. Students are shown how to use the card catalogue, and magazine indexes. The result is better understanding for the new students, and freer use of the Library.

A course in Library Science and Practice is given throughout the year. The first semester is devoted to elementary routine, and the second is given to instruction in use of reference material.

Closing the Library between 5:30 and 7 p. m. has been abolished.

The personnel of the staff has changed. Walter L. Barnes, Acting Librarian, withdrew November, 1910, on account of ill health, and resigned June, 1911. Miss Faith E. Foster was Acting Librarian from November, 1910, to June, 1911. C. Henry Smith, Brown, 1899, was appointed Acting Librarian in June, 1911. In September, 1912, he was made regular Librarian with the rank of Assistant Professor. Faith E. Foster, Colorado, 1912, First Assistant, is now in her fifth year with the Library. Elizabeth M. Phillips comes to the Library from the State Agricultural College Library. Emma A. Jackson, Colorado, 1911, returns to her alma mater after a year in the University of Illinois Library School.

The list of gifts to the Library will be found on pages 97-99. The formal statistical report is printed on page 124, in the Appendix.

ORATORY AND DEBATING.

Since our last annual report there has been considerable further progress in the development of the oratorical and debating interests of the University. The method of managing these interests by means of a committee of the Associated Students, which consists partly of Faculty members, has proved excellent. The University may well take pride in the business-like way in which its relations with other universities have been conducted, as well as in the courteous manner in which its debaters have met their opponents on the rostrum. The class in debating, under a competent instructor, has steadily grown in numbers and in ability. As a consequence, the University has been able to put a larger number of debaters into the contests with other universities, and to add to the number of contests, thus increasing the individual's chances of taking part in this excellent form of intellectual battle. A further improvement in debating relations with other universities is to be noted in the foundation of two permanent leagues—one with Missouri and Texas; the other with Kansas and Oklahoma. It is hoped that a similar organization for oratorical contests will be formed in the near future.

PHYSICAL CULTURE AND ATHLETICS.

Number Registered. There were 891 registered in the Physical Culture and Athletic departments during the academic year of 1911-12, an increase over the two previous years.

New Appointments. Miss Edna Potter, assistant in gymnasium in 1911; Miss Elva Cooper, assistant in gymnasium in 1911; Dr. Mary A. Lake, medical examiner of women in 1911; Dudley I. Hutchinson, student assistant in gymnasium in 1912; Albert E. de Marais, student assistant in gymnasium in 1912; Dr. Walter Wasson, baseball coach in 1912; John Francis McFadden, assistant coach in football, basketball and track in 1912. Dr. Wasson and Mr. McFadden are paid by the Associated Students.

Resignations. Dr. Margaret Johnson, medical examiner of women and assistant in gymnasium, 1911; Mr. Earl Wright, student assistant in gymnasium, 1912.

Out-of-Door Sports. The Department plans to continue and extend the work calling the students out of doors: cross country running has been encouraged in the past and this year it receives an added impetus from the prospects for an intercollegiate contest; walking and climbing clubs are being conducted; intermural contests will be held, as usual, in all the leading games; soccer, started or revived last year, will be continued and an effort made to induce those not engaged in other athletic lines to take up this sport.

Gymnasium. The classes for the required work in the Gymnasium remain the same as in preceding years. Four evening hours, in addition, will be given to varied and interesting work for the upper classmen. A class will also be held for those who contemplate teaching. Attention will be given in all classes, as far as equipment permits, to individual defects and weaknesses. A closer medical outline will be followed for the women, that they may be led to a better knowledge of their individual needs.

Athletic Finances. Owing to the excellent and efficient management of the A. S. U. C. the finances of the Athletic Department of the University are on a more stable foundation than ever before. Since 1906 the debt of \$1,500.00 has been paid—the last of it having been liquidated since the organization of the A. S. U. C. All expenses have been met, and a small balance remains in the treasury.

Conventions and National Meetings. No provision has been made to meet the expenses of a representative to the National Collegiate Association of the United States and The National Association of Physical Directors, both of which convene in New York City during the Christmas holidays. For the past two years the Physical Director of the University, who is a member of the Executive Board of the former, has attended these meetings at his own expense.

Need of Separate Gymnasium and Director for Women. The gymnasium quarters for women should certainly not be the same as those for men; out of justice to both they should be separate. The women in the gymnasium close the building to the men thirty-five per cent. of the time; the remaining sixty-five per cent. of the time the women are completely barred from formal exercise. The Director has also to divide his time, all of which is needed by the men. Since the first-year women are required to take gymnasium work, they are entitled to the full time of a woman director with a private office for consultation and instruction in regard to health. We are not equal to other universities in this respect. At present our required physical examinations are given wherever a secluded place may be found, and, the examination over, no further opportunity is given to women to consult at specified times with a woman advisor regarding health.

The Greatest Need of the Athletic Department at Present. The lack of in-door facilities was a great handicap last year because of climatic conditions hampering out-of-door work. As noted in previous reports, the greatest single need of the Department at the present time is a suitable and dignified gymnasium for men. [The present campaign for the Sarah Platt Decker dormitory for women will probably provide the gymnasium for women.] To meet the immediate need of more gymnasium room, an out-of-door gymnasium could be built at a nominal cost.

Stratton Field is Needed Now. Quoting from last report: "The present athletic field being inadequate for our purposes, the University has recently acquired twelve acres north and east of the Campus and just across Boulder Creek." This ground is unimproved and valueless in its present condition. It is needed now and should at once be graded, drained, and made ready for use. At present we follow the custom of the urchins of the tenelement districts—use a vacant lot for intermural baseball.

Demand for School of Physical Training. Each year there is a greater call from the Colorado secondary schools for men and women trained to teach athletics and physical training. A complete course in this field is not offered in the University of Colorado, because of (1) lack of co-ordination of courses now given in the University with the Physical Training Department; (2) lack of gymnasium room and full time assistance; (3) because no credit is given towards a degree for work done in the Department. A school in Physical Training to qualify graduates to teach these subjects, credited toward a B.A. degree, could be easily planned by using the group system in operation in other Departments of the University.

Conclusion. Finally, the health of the students, the beginning and continuing of the habits of exercise—the things that make a sound body—are not receiving the attention from the State University that the importance of the matter merits.

THE ASSOCIATED STUDENTS.

During the past biennial period the "Associated Students of the University of Colorado" as an organization has become well established and attained a high degree of efficiency and responsibility. The finances of the organization have been placed upon a firm basis through the untiring efforts of the General Manager and the students have received in privileges more than twice the fee they paid for admission to the Association. Last year the coupon book which cost the student five dollars was worth thirteen dollars and ten cents to the student who made use of all the privileges which it granted. In the case of the third and fourth year Medical students the five dollar fee was reduced in 1911 to two dollars and a half. This dispensation was granted because of the fact that they are located in Denver and are unable to enjoy all the privileges of the Association.

The legislative power of the "Associated Students" is lodged in four boards; the Commission, the General Board, the Athletic Board, and the Debating Board. During the past two years the power and jurisdiction of these boards have become well defined and established.

The Commission, composed of nine members, one faculty member appointed by the President of the University and eight student members elected by the students at large—provides for

the general welfare of the "Associated Students," and has done exceedingly creditable work during the past biennial period. The merchants of Boulder have been protected against frequent and unauthorized advertising schemes through the efforts of the Commission. A bill has been passed by the Commission to the effect that six stipulated student publications be deemed worthy of advertising support and that a list of these publications be sent to the merchants.

"The Student Directory," hitherto a hastily thrown together money making project, was given over to the Y. M. C. A. for permanent publication. Thus will be secured a carefully edited and accurate book of information, which will be published by the same organization each year and be something more than a mere source of profit.

All publications by students and student organizations were brought under the control of the "Associated Students" last year by a provision of the Commission making it the General Manager's duty to supervise all such publications, investigate the contracts, consult with the managers, see that fair and uniform rates of advertising are charged, and giving him power to remove the manager whose conduct is unfair or unbusiness like.

In the matter of student discipline the Commission has been active and efficient. In addition to these activities there are a large number of lesser importance as the providing of music for the chapel hours on Fridays, the observance by services of the national holidays, the charge of student demonstrations at athletic games, at the Mountain and Plain Festival, etc.

This year the "Associated Students" will take charge of the Student Clubhouse, which had hitherto been an incorporated organization of rather small membership. By coming under the "Associated Students" every student will be a member and it will become a real factor in University life. Thus far this year the Club has not been housed because of the difficulty in securing economical though desirable quarters.

Last year the Athletic Board had its membership increased to seven by the addition of an alumni member who is elected by the alumni themselves, it being hoped that by this plan the alumni and active students will be brought into a closer relationship. In their spheres the Athletic Board, the Debating Board and the General Board have all done efficient work.

The present General Manager, who has served in that capacity since the beginning of the Association, has placed the management of student activities upon a business like and systematic basis with a sound financial backing.

RELATION TO THE HIGH SCHOOLS.

The past two years have witnessed a very considerable advance in understanding between the high schools of the State and the University. This has been due in the main, so far as the University is concerned, to four lines of endeavor: first, the High-School and College Conferences; second, the inspection and accrediting of the high schools; third, co-operation with school officers in the selection of teachers; fourth, purely educational visits of various members of the faculty to schools and institutes. A fifth line of endeavor has been tentatively tried and will be used extensively, beginning this year—namely, visits to the University of schoolmen for the purpose of studying the University problems and of bringing to the University ideas of the common work from the standpoint of those in the field.

High-School and College Conference.

Most important of these various lines is unquestionably the High-School and College Conference. Each year has seen keener interest, better feeling, more anxiety to get at essentials of understanding and justice to both sides. The first Conference was held in 1896 and since then Conferences have been held in 1898, 1903, 1909, 1910, and 1912. The abridged proceedings of the first five have been published as a University Extension Bulletin, General Series No. 1, Education Series No. 1. The fourth was described in detail in the Regents' Report for 1908-1910. Much of what was projected in the earlier Conferences seems to have been realized in the last two, the Fifth and Sixth, meeting in 1910 and 1912, respectively. The chief results seem to be about as follows:

First, there is a much better understanding and appreciation of the problems common to high school and college. We have come to see that the problems are common; that the high school and college, taken together, constitute an eight-year course; that it is reasonable that there should be such a sequence in the

course and such comprehensiveness that, while there will be every inducement for everyone taking it to complete it, there will still be no undue hardship involved for one who must take up the duties of living and citizenship either at the end of the high-school period or at some other point short of college graduation. This has been shown in resolutions passed especially by the Fifth and Sixth Conferences which, while they acceded somewhat to the radical demands for the admission to the curriculum of the more specifically industrial subjects—Commercial Branches, Manual Arts, Agriculture, etc.—have still held that there should not be an over-emphasis of this class of work and that such subjects should be taught in such a way as not to neglect what are commonly known as educational and cultural values. The suggestions of the Conference have been concurred in by the College of Liberal Arts through the adoption of a modification of the requirements for admission, to wit—"From the following group, subject to special accrediting by the University, not more than three units: Drawing, 1; Manual Arts, 2; Domestic Science, 1; Agriculture (Introductory Science), 1; Commercial Geography, $\frac{1}{2}$; Elementary Economics, $\frac{1}{2}$."

Second, in conformity with an implied partnership of the high-school and college forces, there has been worked out a scheme of organization for the annual conference which brings the teachers and administrators of high school and college into close working association. The more important details of this scheme, adopted by the Fifth and amended by the Sixth Conference, are as follows:

There is an Executive Committee constituted of two persons appointed by the President of the University and three named by the Conference, acting in a co-operative and advisory capacity with the University Inspector of High Schools, the Chairman being designated by the President of the University. There is a General Committee on College and High-School Relations named by the Executive Committee—the members of the High-School Committee of the University Senate and of the Executive Committee named above being members of this General Committee, and the Chairman of the Executive Committee being *ex officio* Chairman of the General Committee. The General Committee originates propositions for discussion by the General Conference but may

not present measures to the University for consideration until such measures have been passed upon by the Conference; all measures discussed by the Conference are referred by way of the General Committee to the University and the General Committee has power to make such minor amendments in phraseology as may be necessary for effective statement. The Executive Committee appoints such special committees as may be necessary to carry on the various inquiries of the Conference, and such committees report as often as may be required to the General Committee. These Committees are: Latin and Greek; German, French and Spanish; English, English Literature, Debating and Dramatics; History, Civics and Economics; Mathematics; Physics, Chemistry and Physiography; Biology, Botany, Zoology and Physical Geography; Commercial, Industrial and Art Subjects; Athletics. These committees have done much work.

Third, there is a well-defined idea of the minimum qualifications of high-school teachers which is best shown, perhaps, in a resolution passed without dissent in the Fifth Conference and which was initiated by the high-school men: "It is the belief of this Conference that teachers of high-school subjects should have as minimum qualifications graduation from a School of Liberal Arts and professional training equivalent to that demanded by the State Board of Examiners of candidates for the State Diploma." This same attitude appears repeatedly in the provisions of resolutions presented by the committees on special subjects.

Fourth, a great deal of progress has been made in the standardization of units, that is, in getting fairly common subject-matter taught in the various high schools—for example, English, Mathematics—and in getting more logical organization and efficient methods of instruction before the various teachers. The special committees have done a vast amount of correspondence along this general line, have held numerous meetings, and have brought before the Conference and secured the adoption of many important resolutions.

Fifth, the discussions in the Conference have brought about a very much clearer understanding of the function of high-school inspection by the University and, apparently, a much more cheer-

ful acquiescence on the part of the high schools. The Fifth Conference agreed:

"That a more thorough and systematic inspection of the high schools by the State University is desirable; that the inspector should be an experienced and well-qualified man who should devote his whole time to this work; that every high school in the State should be carefully inspected at least once a year; that the inspector should candidly inform principals, superintendents, and school boards when he deems teaching unsatisfactory or conditions unfavorable for good work; that he should report his findings to the University; and that the accrediting of schools should be based on his reports."

A Special Committee on High-School Inspection was appointed by this Conference and made its report to the Sixth Conference. This report, which will be mentioned in detail later in connection with the inspection and accrediting of high schools, was approved by the Conference and the recommendation made that it become the basis of "a scheme of supervisory inspection to be undertaken by the Executive Committee of the Conference."

Sixth, the whole matter of the placing and promotion of teachers has been up for formal and informal discussion. The Fifth Conference authorized the appointment of a special committee to investigate the subject and this committee made a report to the Sixth Conference. This report was approved, recommendations were made on the matter of reference blanks adopted, and the committee was continued and instructed to report further at the next meeting of the Conference. The committee was empowered to draw up a code of ethics for the use of superintendents, principals, and others in the matter of teachers' recommendations. The chief recommendations of this report were: a form of reference blank which might take the place of the "To Whom It May Concern" recommendation now so widely used by schoolmen and officers; the use of the personal recommendation and personal letter (with specific suggestions as to particular points); the increase of the powers and duties of the State Board of Examiners to include the granting and revoking of certificates, grading of papers and issuing upon examination of certificates of the first grade good in all counties, and the employing

of secretary and clerical assistance to maintain an index service record of all teachers licensed in the State, a classified list of those seeking positions or promotions, and a reference list of vacancies for the use of qualified teachers in Colorado.

Seventh, the matter of high-school athletics has been discussed in practically all of the Conferences and, though the complexity of the subject is great, some headway has been made, especially in the recommendations made to the last Conference.

Eighth, the Conferences, especially the last one, have been the means of initiating the prosecution of a number of important investigations. The chief matter which will come up before the next Conference is an investigation "into the matter of economy in the choice of subjects, in the number and correlation of subjects, in the amount of material, and in the methods, to the end that the excessive claims of different departments and the consequent overcrowding and haste may be avoided." This is now being carried on by a special committee appointed for that purpose.

The Inspection and Accrediting of the High Schools.

The inspection of high schools has been more carefully attended to during the past two years than ever before. One man now devotes his entire time to this function and cooperating with him there has been a Committee of seven faculty members that has held frequent meetings for the discussion of standards for admission to the accredited list and of the approximation of specific schools to these standards. The inspector and the college catalogue serve as agencies of communication between Committee and high schools. The present custom of the High-School Committee is to examine very carefully the reports of all schools, both those on the accredited list and those nearly up to the requirements for admission to the list; to add to the list those which have for the first time come up to requirements for admission; to take from the list, explaining to them in detail why, those which have fallen short of requirements; and to warn any schools which seem to show signs of weakness but which are not positively below standards. The standards for accrediting are annually "revised upward" in conformity with progressive ideas and are printed in the catalogue. Reprints of them are also sent to each school. There are at present on the accredited list 66 schools and from 10 to 15 others are near the minimum require-

ments. About 45 other four-year schools are still well below the minimum requirements. Beginning with this year, 1912-1913, the inspection will conform as far as possible to recommendations of the Sixth Conference, in essence, as follows: The high-school inspection is to be done in a spirit of constructive criticism with a view solely to upbuilding the schools visited; a broadly trained educational expert should devote his entire time to this work and, if from a college, should be given the recognition of a full professor; inspection for accrediting should be done preferably by a committee and it might be wise to grant some local representation on the committee; the work of the inspector should be clearly dissociated from that of student dragnet and from that of committee on recommendation of teachers; greater emphasis should be placed upon the visitation of the inspector and greater value derived therefrom both for the school and the community; the chief elements to be considered in determining school efficiency are: teaching force, equipment, tone of school, course of study, local relations, and subsequent records of pupils, and this last element should be given increasing recognition; there should be appointed a committee to cooperate and advise with the inspector on the general policies and conclusions of his work, and report to this body annually. These recommendations, as noted above, were made the basis of a scheme of supervisory inspection to be undertaken this year.

Report of the High-School Inspector, Charles H. Williams.

To the Committee on High Schools:

Perhaps the most important problem that has engaged the attention of educators in Colorado during the past two or three years has been the question of the relation of the so-called cultural and practical subjects. In considering this problem Colorado was one of the pioneers, and is already well advanced on the way to a solution. The solution has consisted in giving both lines of work due attention. While emphasizing the traditional subjects, such as history and English, these have constantly been made more and more practical. This change has also been hastened by the introduction of new subjects, such as agriculture and domestic science. Two ideas have continually been kept in mind: first, that in the secondary school the student should everywhere receive instruction in both the

practical and the cultural subjects; and second, that practical subjects, when introduced, should be related to the environment of the student and appeal to the interests already aroused by that environment. In agricultural communities attention is centered upon agriculture and domestic science; in mining towns, the agriculture is generally replaced by manual training and commercial courses. So general has been the call for the practical that there are now very few high schools in the State which do not offer courses in some or all of these subjects.

In addition to this main question of the curriculum, other and scarcely less important problems have been under consideration—among them, the problems of increasing the attendance in the high schools, of providing larger and better buildings, of improving the equipment for libraries and laboratories, and of raising the salaries and standard of qualifications of teachers. In each and every one of these respects a distinct advance has been made in the last two years. Attendance has increased, particularly in the smaller towns surrounded by agricultural communities. This is due in part to a more lively interest on the part of schoolmen and of parents and in part to the introduction of agriculture and domestic science into the schools. In the matter of buildings, so active has been the improvement that during the last two years out of a total of eight-five high schools (exclusive of Denver) sixteen have been provided with entirely new and modern buildings, and in the case of six others extensive additions have been made to the old buildings. The addition of needed equipment in the nature of libraries and laboratories has been most marked in the smaller schools, the larger ones being already well equipped. A reasonable estimate is that during the last two years the smaller schools have on the average increased their equipment 50 per cent., and that those admitted to the University's accredited list have increased their equipment 100 per cent. The increase in salaries and qualifications of teachers has also progressed steadily, though more slowly. Salaries compare very favorably with those paid in neighboring States, though there is still need for improvement in the matter of relative salaries in the various schools. The same can be said of the standard of qualifications

of teachers—while the average is good, there are still some exceptions.

Aside from these questions pertaining to the high school proper, there is one other serious problem that confronts high school principals everywhere, namely, the vast difference in the preparation of pupils entering the high schools from the grades. Almost any high school in the State will show in the ninth grade every variety of preparation, from the very best to the very poorest. The floating population of Colorado and the fact that preparation has been made in so many schools is, in part, responsible for this; but it is more directly due to the fact that the grade schools, particularly the rural schools, have not yet received sufficient attention from educators and legislators; that they have not been properly graded or supported, and that with a few exceptions any county in the State will show every variety of condition, good and bad. The county superintendents have done much to better this situation, but they are hampered by the need for a better system of taxation, for improved certification laws, and for a minimum salary law. It would also be a great advantage if rural school inspectors were provided whose duty it should be to inspect the rural schools and assist in raising their standards. These needs should immediately engage the attention of high-school principals as well as of grade superintendents, for the high schools as well as the grades are suffering from present conditions.

During the past two years the High-School Inspector has centered his attention largely upon the problems mentioned. He has visited all the high schools of the State, most of them from three to five times, has carefully inspected each school, and has sought to give suggestions that would tend to improve the school and raise its standards. It has been the policy of the Inspector to devote a day to each visit and, in the case of the larger schools, to give a longer time or make two visits. Wherever possible, the Inspector has met school boards and made recommendations directly to them as well as to the superintendent and principal. The most common suggestions and recommendations have been regarding improved methods of teaching, regarding the need for better buildings, for larger and better-arranged laboratories, for up-to-date libraries, for additional teachers, where needed, for better salaries in the

smaller schools, for improved ventilation, and for the keeping of proper records. All of these suggestions, without exception, have been kindly received and the Inspector feels that he is greatly indebted to the schoolmen of the State for the marked courtesy and consideration which he has everywhere been accorded.

Co-operation with School Officers in the Selection of Teachers.

An increasingly important phase of the University's work is that of the placing and promotion of teachers. A list is made up each year of those who are just leaving the University, of those who have been teaching and now wish or deserve promotion. Correspondence is then invited with school officers who may be in need of teachers. An earnest, and usually successful, attempt is made to put such officers in touch with candidates who will succeed. The past season, just closing (summer of 1912), there have been on the list 182 persons of whom 152 have secured positions.

The Regents, last year, authorized the charging of a nominal fee, \$1.00, for registration with the Committee in charge of this work, the idea being to make the work to some extent self-supporting and to promote the guild-sentiment among those who enter the teaching profession from this University. The placing and promotion of teachers is a great saving to those who might, otherwise, have secured positions through teachers' agencies. A teachers' agency charges, as a rule, a commission of 5 per cent., which must usually be paid from the first month's salary. For 152 teachers, on an average salary of \$630 per year, the total of such commissions would be \$4,788.

Educational Visits of Members of Faculty to Schools and Institutes.

During the past year, a promising means of keeping in touch with the high schools has been developed in a scheme of special educational visitors—namely, the sending of members of the faculty to the schools in which they can do something for their particular subjects. Although no one professor can visit more than two or three schools in any one year, the rotation of ten or twelve professors will shortly cover most of the high schools. In 1911-1912, ten professors visited twenty-

two schools, examined carefully the high-school aspects of their subjects in each school, made a talk or talks to the students and the community, and ascertained as carefully as possible what might be done by the University for the general good.

BUILDINGS AND GROUNDS.

The following are the improvements made during this biennial period:

1. West wing of Science and Museum Building completed January, 1911.
2. Macky Auditorium placed under roof and the wings and tower spaces—entire front part—nearly completed and in use. Cost to date, \$245,571.20; paid in this period, \$171,866.87.
3. Old Anatomy Building refitted for Pharmacy, summer 1911.
4. Cottage No. 2 turned over to Associated Students for Commission headquarters, staff of Silver and Gold, etc., September, 1912.
5. Arch in stone bridge across ravine constructed; enclosure adjoining President's House; eight-foot walk running south from Auditorium.
6. Many readjustments in the Main Building, now called the Arts Building; Art Collection removed to east wing of Auditorium; administration removed to west wing of Auditorium—all, summer, 1912.

NEEDS OF THE UNIVERSITY.

The following are some of the reasons why the University should receive a larger income:

- (1) According to the statistics of 1909-10, the average cost per student in the forty state universities was 74 per cent. greater than in the University of Colorado. In order to receive the average rate of maintenance for the University, the present regular income would need to be increased 74 per cent., an increase which would call for a special appropriation, in addition to the two-fifths mill tax, of \$138,677 per year, or \$277,354 for the next biennial period. This is figured on the basis of the income

for regular expenses of two years ago. The income for the present biennial period is not yet known. For the next two years the University of Illinois was voted by the State legislature \$3,519,300; thereafter it receives the income of a one-mill tax. For thirty-six-years, from 1874 to October 1, 1910, the University of Colorado has received from all sources, State and fees and gifts, only \$3,214,715. The University of Illinois has about three and one-half times the students, but about eight times the income of the University of Colorado. Many like comparisons could be made.

- (2) Since the two-fifths mill rate was granted in 1903 the increase in students, omitting Preparatory and Summer Schools, has been nearly 150 per cent., while the increase in State valuation has been only about 25 per cent. The two-fifths mill, under the present valuation, is wholly inadequate for the regular needs of the University.
- (3) The salary schedule of the professors is not in keeping with the rank of the University, especially in consideration of the relative high cost of living in Colorado, and the costly distances involved in attending the numerous educational meetings held in various parts of the State, and of the country. More teachers are needed and more of a higher grade than instructors and assistants on a nominal salary.
- (4) With the income of the present biennial period, even if the special appropriations are paid in full, the Regents are obliged to cut out all department appropriations for books and apparatus in the second year of the period.
- (5) The School of Medicine is organized to do much important and efficient service for the State. In order to do its work, according to the standards now demanded, it must have larger support. There is an insistent need of funds for the employment of additional full-time members of the Faculty, and of such competent assistants for each as will enable the

several members of the Faculty to carry on their work to the best advantage to themselves, the students, and the institution as a whole.

- (6) Investigations. The various departments of the University have submitted to the Regents 28 lines of investigation that could be carried on with profit in the next biennial period, if funds are provided by the legislature. These include vital subjects in Engineering, Chemistry, Biology, and Physics. No special appropriation for this work has ever been made. By estimates submitted to the Regents the investigations referred to could be undertaken for \$25,000.

We may add that a great, outstanding need of the University is an income that will enable it to meet the most vital needs of the State, which is an exhaustive study and report on the complex conditions of modern industrial, commercial and social life. We refer to such subjects as discriminating care of the poor and unfortunate, the eradication of disease and preservation of health, the construction and repair of roads, economy and high efficiency in city and county administration, the fundamentals in all popular government—these are the questions on which hinge the life and growth of every modern community. Moreover, these are just the questions which the University is peculiarly adapted to study and to answer.

- (7) The Graduate School is a vocational school of the highest value. It is the place of preparation for those who wish to become investigators of a special subject; it also prepares for the larger duties of citizenship. The Graduate School has never received special recognition. The work has been done voluntarily by professors as a burden added to already exacting duties. The School needs funds for administration, library, research, and scholarships, and extra teaching service; \$10,000 a year for the next two years, requested by the Graduate Com-

mittee, would hardly make a beginning in building up Graduate work.

- (8) The College of Engineering requires a very much larger equipment, and a special appropriation should be made for that purpose. Also funds should be provided for the Course in Architecture at the University, suggested in the Colorado Statutes of 1909, Chapter 136; \$25,000 for general apparatus and machinery and for architecture would make only a bare beginning. A report in detail on these needs is in the hands of the Regents.
- (9) The College of Education provides for general and special preparation of teachers for the high schools in the State. While this has always been a function of the College of Liberal Arts, the high schools now demand certain courses in pedagogy and practice teaching. The work has been so organized here within the College of Liberal Arts as to add only nominally to the expense. But something should be added to the equipment and teaching force in this department; \$10,000 for the two years would be most usefully expended. The list of special needs, requiring this amount, has been submitted to the Regents.
- (10) Hygienic Laboratory. In the last few Biennial Reports attention has been directed toward the need of a State Hygienic Laboratory. This need exists today more urgently than at any time in the past, and the University is today better prepared than ever before to undertake this work. Such a hygienic laboratory should undertake for the State and the State's officers, investigations in Chemistry, Bacteriology, Pathology, Sanitary Engineering, and Hygiene. The work in hygiene alone would be of the utmost value to every citizen of the State. This division would investigate health problems and epidemics throughout the State, and would be of the greatest service to county and local health officers in the performance of their duties. It would

also undertake the manufacture and distribution, at cost to citizens of the State, of anti-toxins for diphtheria and tetanus, vaccines for smallpox, rabies, typhoid, etc. The money now paid by the citizens of Colorado for diphtheria anti-toxin alone would maintain the entire laboratory. The Department of Preventive and Experimental Medicine makes a minimum estimate of \$20,000 to inaugurate and carry on this work the next two years.

- (11) The Regents have inaugurated Extension Work and a Director has already been appointed. This department is planned to extend the service of the University to the people in special ways: By lectures, and study centers; correspondence work; library extension; bulletins of investigations; various similar lines of service. At least \$10,000 for two years should be granted for this purpose. Estimates have been submitted to the Regents by the Department.
- (12) In estimating the expense of the University, it must be remembered that it is made up of many schools and departments. If the College of Engineering were a separate college, it would be given five times its present income. If the School of Medicine were a separate institution, probably a like increase would be granted for its support. The same may be said of the School of Law and of the Graduate School. If the College of Education, which is incorporated as a department of the College of Liberal Arts, were a separate institution, it would be given ten times its present cost. The same may be said of the College of Commerce. In the College of Liberal Arts there are twenty departments, each of which is a school in itself, and each offers about twenty-five courses of study, including the application of the subjects offered as well as the foundation principles.
- (13) The important building needs may be presented in the following order:

1. MEDICAL BUILDING AT BOULDER.

As noted in several preceding reports, the most urgent

need of the Medical School is a suitable building at Boulder. With expansion of the School along the lines of research work and direct service to the people of the State, and with the increasing importance of laboratory instruction, demanding constantly greater laboratory facilities, this need is becoming imperative. The present building is ill-adapted to its purpose and is wholly inadequate in size. The excellent work which has been done in the past few years has been accomplished only under great difficulties and any further advance either in teaching, investigations, or public service, is well nigh impossible without increased facilities.

2. COMPLETION OF THE AUDITORIUM.

A special report will be made on this.

3. LIBRARY, TWO WINGS ADDED.

Needed because every day at certain hours the Library is overcrowded—sometimes one department alone demanding more than the present reading room space; also because the present stack room is full; also because there is no general reading room and no general stack room, and no departmental rooms for special research or for the Graduate School.

4. ADDITIONAL ROOM FOR ENGINEERING.

Needed because the two small buildings now devoted to four schools of engineering do not allow adequate room for the many kinds of laboratories and experimental work, and for the large classes in the various kinds of shop work.

5. CENTER AND EAST WING OF NEW SCIENCE AND MUSEUM BUILDING.

Museum now housed in one small room, where not even a representative exhibit of material on hand can be displayed for use of students; about 50,000 mollusks in drawers and only one small case on exhibit; 60,000 fossils in drawers and only a few small cases exhibited; exhibition cases too much crowded; Museum library, laboratory, workshop and administration office in one room 13 feet square, in which four and sometimes five people worked at a time last winter; no room for expansion.

Biology Department needs now five times its present room, and, if properly expanded, would require ten times the space. It is understood that the Museum is to occupy the Center and Biology the East Wing of the building when completed.

6. MEDICAL BUILDING IN DENVER.

The Denver division of the Medical School is now renting property on the corner of Welton and Thirteenth Streets. The contract expires June 30, 1914. Provision should be made for ample grounds in the vicinity of the County Hospital, and also for the beginning of a structure adequate to the needs of the school. There is need of a building to contain two amphitheaters, adequate laboratories both for routine teaching and for research work, and suitable quarters for the Dispensary. This last would include offices, a general reception room, a room for preliminary examination and assignment of patients, and from two to five rooms for each of the eight departments into which the work of the Dispensary is divided. A drug room, proper store rooms, animal rooms, etc., would also be included.

7. CHEMISTRY BUILDING.

The Chemistry Building is already over-crowded, and therefore an addition should be made for the needs of this important department.

8. WOMAN'S BUILDING.

Needed as the center of social life for the four hundred young women in the University; as headquarters of the Dean of Women, Woman's League, Young Women's Christian Association, and for the Women's Athletic Clubs; also for dormitory accommodations for, say, two hundred women students who do not find convenient homes elsewhere. Such a building should include women's gymnasium, rest room, library, etc. A movement is begun to erect a gift Memorial Building. This has been fully described in the public press.

9. ARTS BUILDING.

Needed because the present old Main Building is condemned by every legislator who visits it; because for

college class rooms the present building is wholly inadequate. The College of Liberal Arts is obliged to seek rooms anywhere on the campus where they can temporarily be found.

10. GYMNASIUM.

Needed because the present gymnasium was built for two hundred students at a cost of six thousand dollars, and is not one-tenth large enough for present demands.

Summary.

The University aims to give a fair statement of its needs for each biennium. The Regents know well that the income for State purposes is limited, and that there are many needs. Therefore the final estimates of possible increase of money for the University is made after conference with the legislative committees which are appointed to study the needs of the institutions or to estimate and apportion the revenues. Here follows a summary of the preceding statements regarding needs for the next biennium: This includes (1) need of increase for general support; (2) estimates calling for appropriations for six specific purposes made by the departments concerned; (3) building needs.

Increase of regular income in addition to the income from the two-fifths mill tax [For two years, to make it equal to the average in the forty State universities in proportion to students]	\$ 277,354
Investigations [Described in preceding section]	25,000
Graduate School [No special fund for the Graduate School has ever been provided]	20,000
Engineering Equipment, and Architecture [Not one-fourth of what is needed]	25,000
College of Education [Three hundred are studying in this department. More equipment is needed]	10,000
Hygienic Laboratory [Of first importance in study of health conditions in Colorado]	20,000
Extension Work [Colorado is behind most State universities in beginning this work]	10,000
Toward the erection of the ten buildings needed [Reference is made to the descriptions in the preceding section, and investigation is invited].....	.....

GIFTS.

Class of 1910, University of Colorado, painting, Hope, by G. F. Watts	\$ 40.75
Class of 1912, University of Colorado, painting, The Old Battersea Bridge, by J. M. Whistler	46.50

Civil Engineering.

G. G. Anderson, Denver, Colorado, drawings	\$ 25.00
Colorado Fuel & Iron Co., Pueblo, Colo., reinforcing steel	40.00
Golden Cycle Mining Company, Colorado Springs, Colo., by E. F. Smith, picture	10.00
Gould Mfg. Company, Seneca Falls, N. Y., lantern slides	6.00
Ideal Portland Cement Company, Portland, Colo., ce- ment	25.00
Kansas City Structural Steel Company, Kansas City, Mo., pictures	10.00
McClintic-Marshall Company, Pittsburg, Pa., picture ...	10.00
Pennsylvania Steel Company, Steelton, Pa., pictures....	40.00
Ramapoo Switch Company, Hilburn, N. Y., by W. C. Kidd, switch stand (model)	100.00
E. C. Rohde, Jr., State Center, Iowa, and others, rock specimens	500.00
U. S. Portland Cement Company, Concrete, Colo., ce- ment	2.50

Electrical Engineering.

A. W. Ainsworth, Boulder, Colo., electrical testing lab- oratory (provisional gift)	\$ 9,003.00
Northern Colorado Power Company, Boulder, Colo., lot of old instruments	50.00
Western Electric Company, Chicago, Ill., complete set of laboratory demonstration telephone apparatus..	120.00
Westinghouse Electric & Mfg. Co., Pittsburg, Pa., 4 K. W. transformer	55.00

Mechanical Engineering.

Carborundum Company, Niagara Falls, N. Y., set of samples of carborundum	\$ 5.00
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Erie City Iron Works, Erie, Pa., set rivet samples.....\$	5.00
Mason Regulator Co., Boston, Mass., Mason pump regulator	45.00
Mason Regulator Company, Boston, Mass., 2 Mason regulating valves (cut in section)	44.00
Mr. McKinney, Boulder, Colo., Handcock inspirator..	10.00
Neptune Meter Company, New York, N. Y., Neptune water meters	30.00
Novelty Iron Works, Denver, Colo., house heating boiler	85.00
Texas Oil Company, Houston, Texas, set of samples of oils	100.00
Sample of metallic packing	10.00

Geology.

J. B. Annear, Wallstreet, Colo., 6 specimens of telluride and gray copper, and 1 specimen of mineralized charcoal	\$ 10.00
J. G. Clark, Boulder, Colo., 1 specimen of ferberite crystals	2.00
Colorado Fuel & Iron Company, Denver, Colo., collection of iron ores, fluxing materials, ferro-alloys, irons, steels, finished products, including in all about 300 pieces	150.00
I. C. Crawford, Boulder, Colo., zinc minerals from Leadville	4.00
Denver Fire Clay Company, Denver, Colo., a collection of fire clay products	50.00
Fred Fair, Boulder, Colo., 4 specimens of wire silver..	4.00
Robert Hill, Boulder, Colo., mineral specimens	5.00
A. J. Johnson, Ohio, Colo., mineral specimens	8.00
C. R. Johnson, Independence, Colo., sylvanite	2.00
C. F. Lake, Boulder, Colo., specimen of tungsten crystals, 4 small specimens for study collection	11.00
Dr. W. M. Long, Boulder, Colo., 2 specimens native gold	12.00
L. V. Person, New Haven, Conn., mineral and rock specimens	10.00
George H. Purmort, Salida, Colo., cuprite specimens ...	10.00

Museum.*

D. M. Andrews, Boulder, Colo., mammal and bird	
Ellsworth Bethel, Denver, Colo., mollusks, etc.....	
Norman E. Betts, Denver, Colo., birds, mammals and mollusks	
John J. Blanchard, Boulder, Colo., birds and mammals	
Witt Bowden, Rising Star, Texas, fossils	
Prof. Calvin S. Brown, University, Miss., fossils and mollusks	
Earl Butters, Osgood, Colo., natural history specimens..	
Roy M. Butters, Boulder, Colo., mollusks	
George L. Cannon, Denver, Colo., fossils, minerals and Philippine native hats and baskets	
Prof. T. D. A. Cockerell, Boulder, Colo., mollusks, etc..	
Mrs. T. D. A. Cockerell, Boulder, Colo., Guatemalan birds, reptiles and mollusks	
Roy C. Coffin, Colorado Springs, Colo., fossils	
R. T. Copeland, Boulder, Colo., bird	
Albert Dakan, Longmont, Colo., mollusks (new species)	
Clarence DeVoss, Boulder, Colo., mammal, mollusks and fossils	
Dr. Gideon S. Dodds, Columbia, Mo., mollusks.....	
Terry Duce, Boulder, Colo., birds, mammals, mollusks and fossils	
Dr. Max M. Ellis, Boulder, Colo., mollusks, mammal skulls, etc.....	
Mrs. Marion M. Ellis, Boulder, Colo., birds and mammals	
Fred A. Fair, Boulder, Colo., minerals	
Ethel Ford, Boulder, Colo., mollusks and fossils	
Jacob Gimbel, Vincennes, Ind., very valuable collection of South American fishes	
G. B. Goddard, Sterling, Colo., fossils	

* This does not include material collected by the Curator or other members of the faculty while engaged in regular routine field work, or acquired by exchange.

Prof. Junius Henderson, Boulder, Colo., fossils and mollusks	
Norman E. Hinds, Denver, Colo., fossils	
Miss Hister, Rayne, La., mollusks and fossils	
S. C. Hughes, Boulder, Colo., turtle	
David M. Hunter, New York, N. Y., fine collection of New York fossils	
W. H. Hyde, Boulder, Colo., birds	
Ray Jones, LaSalle, Colo., fossils	
I. A. Keyte, Salida, Colo., fossils	
Harvey C. Markman, Montclair, Colo., mollusks	
Allen McArthur, Garfield, Utah, fossils	
F. L. McCracken, New York, N. Y., minerals	
Dr. S. G. Morley, Boulder, Colo., fossils and birds.....	
Earl H. Morris, Farmington, N. M., birds and reptiles..	
Eva Grace Miller, Boulder, Colo., large collection of Colorado butterflies	
T. H. Parkhurst, Azusa, Calif., reptiles, insects, etc....	
Howard Patton, Gold Hill, Colo., mollusks	
Rosamond E. Patton, Gold Hill, Colo., mollusks.....	
Dr. H. A. Pilsbry, Philadelphia, Pa., mollusks	
Frank Rohwer, Boulder, Colo., mammals, reptiles, mollusks and fossils	
George Rohwer, Boulder, Colo., French mollusks	
Benjamin Rowland, Boulder, Colo., reptiles	
G. C. Sherwood, Canon City, Colo., fossils	
George A. Smith, Boulder, Colo., snake	
Harry E. Sovereign, Grand Valley, Colo., fossils	
D. W. Spangler, Longmont, Colo., mollusks	
Cipriana Subejano, Iloilo, P. I., Philippine mollusks..	
Arthur G. Vestal, Boulder, Colo., mollusks	
Don W. Walker, Boulder, Colo., mollusks and fossils..	
S. A. Walker, Boulder, Colo., mammal and fossils....	
E. R. Warren, Colorado Springs, Colo., mollusks	
Prof. James F. Willard, Boulder, Colo., mollusks, insects, fishes, amphibians and reptiles	

Value of above donations\$ 990.00

Physics.

Prof. O. C. Lester, Boulder, Colo., two books.....	..
Prof. O. C. Lester, Boulder, Colo., three pictures.....	..
Cornelius J. Marvin, Denver, Colo., New Edison Storage Battery .....	..

Pharmacy.

Parke Davis & Co., Detroit, Mich., specimen case con- taining 288 pharmacognosy samples.....	\$ 100.00
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Medicine.

Laboratory of Dr. Henry S. Denison.....	\$ 2,000.00
St. Joseph's Hospital, Denver, Colo., 500 specimens pathological material	1,000.00
Dr. George H. Stover, Denver, Colo., static machine....	400.00

Biblical Literature.

Whiteley Estate	\$ 9.35
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Library.

Library Gifts:

	Books.	Pamp.	Maps.
Baker, President James H.....	2	1	
Barnes, Walter L.....	1	46	
Bennett, Judge C. A. (Abraham Lincoln autograph books)....	3		
Blakey, Roy G.....	1		
Brewster, Judge J. H.....		8	
Buchtel, Hon. Henry A.....	1		
Canada Department of Mines...	4	44	
Carnegie Institution of Washing- ton	19	17	
Cockerell, Prof. T. D. A.....	1	13	
Cole, Dr. L. W.....		5	
Colorado Agricultural College...	3	24	
Colorado School of Mines.....		16	
Colorado State Documents.....	32	14	
Cook, Mrs. Dr.....	34		7

	Books.	Pamp.	Maps.
Cowie, Hon. James.....	27	79	
Eckhardt, Dr. C. C.....	6		
Ekeley, Dr. John B.....	51		
Epsteen, Dr. S.....			1
Fleming, Dean J. D.....	4		
General Electric Co.....		122	
George, Prof. R. D.....	23	117	
Guggenheim, Hon. Simon.....	37		
Hagen, Secretary Fred E.....	4		
Harlow, Dean W. P.....	4	13	
Hellems, Dean F. B. R.....	36	17	
Henderson, Prof. Junius.....	2		
Hills, Franklin G.....	97	2	
Ketchum, Dean Milo S.....	1		
Klemme, Supt. Joseph.....		22	
Lien, Arnold J.....	2		
Lester, Dr. O. C.....	45		
Macaulay, F. R.....	6	2	
Maine State Library.....	39	23	
Morley, Dr. S. G.....	2	1	
New York State Education Dept.	6	11	
New York State Historical Soc..	38		
New York State Library.....	127		
Norlin, Dr. George.....	1		
North Carolina Geological Sur- vey	4	43	
Odell, Mrs. Maud Gardner.....	4	1	
Office	24	82	
Peebles, Dr. A. R.....	14	25	
Phillips, Dr. John B.....	136	5	
Princeton University. Theses..		18	
Public Library, Denver.....	70	230	
Ramaley, Dr. Francis.....	3		
Richardson, D. V.....	12		
Robbins, Reginald C.....	3		
Sperry, C. Stillman.....	18		
Thompson, Prof. Frank E.....	2		
Thomson, Mrs. "C. I. Thomson Collection"	981		

	Books.	Pamp.	Maps.
Todd, Dr. James C.....	4		
Tutt, Charles	4		
Union Library, Hatboro, Pa. (Dr. Willard)	146	37	
United States Government Docu- ments	1,229	7,214	191
University and College Cata- logues	8	1,324	
University of Chicago. Theses..		96	
University of Colorado. Board of Regents	19		
University of Colorado. College of Education	198		
University of Colorado. Hebrew History Class	11		
University of Colorado. History Class	10		
University of Colorado. School of Medicine	198		
University of Colorado. Student Publications	18		
University of Colorado. Theses.	119		
University of Michigan. Library	2	16	
University of Pennsylvania. Theses		44	
Wheeler, Mrs. Mary K.....		34	
Willard, Dr. James F.....	204	191	
Woods, Miss Velma.....	22	3	
Miscellaneous	528	1,870	
<hr/>			
Total Library Gifts.....	4,650	11,831	198 \$4,977.00
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Total gifts	\$20,172.10		

Summary.

Gifts previous to 1896.....	\$27,207.00
Gifts, 1896-1898.....	11,556.00
Gifts, 1898-1900.....	7,042.00
Gifts, 1900-1902.....	756.00
Gifts, 1902-1904.....	1,949.00
Gifts, 1904-1906.....	7,123.75
Gifts, 1906-1908.....	2,980.50
Gifts, 1908-1910*.....	5,609.85
Gifts, 1910-1912.....	20,172.10
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Total	\$84,396.20

* NOTE—These should be added: Simon Guggenheim Law Building, dedicated November 24, 1909, \$51,000; Macky Auditorium (under construction), see p. 120.

REPORTS SUBMITTED.

We submit herewith the Pay Roll of the University, Financial History, Secretary's Fee Report, Report on Permanent Fund, Report on University Lands, Report of State Auditor, Treasurer's Report, Report on Building Funds, Report on Macky Bequest, Secretary's Report, Librarian's Report, Inventory of Property.

Respectfully Submitted,

CHARLES R. DUDLEY,
 JOSEPH C. BELL,
 ALVA B. ADAMS,
 ETHELBERT B. ADAMS,
 WILLIAM J. KING,
 ANNA L. WOLCOTT,
 Board of Regents.
 JAMES H. BAKER,
 President.

FRANK H. WOLCOTT,
 Secretary.

APPENDIX.

PAY-ROLL OF THE STATE UNIVERSITY (Annual).

Administration.

James H. Baker, M.A., LL.D., President	\$ 5,000.00
Frank H. Wolcott, B.S., Secretary Board of Regents....	2,100.00
Fred E. Hagen, B.A., Secretary and Registrar	1,800.00
Katharine Kalene, Stenographer	720.00
Clara Fallon, B.A., Stenographer	720.00
Mary E. Myers, Stenographer	540.00
Percy L. Corbin, B.A., Employment Bureau	300.00
Bertha Hunting, B.A., Students' Aid	200.00
Estella Gehrung, Faculty Stenographer	450.00
Floyd Swallow, Messenger	360.00
Additional clerical help in Registrar's Office	1,056.59
	<hr/>
	\$13,246.59

College of Liberal Arts.

Fred B. R. Hellems, Ph.D., Dean; Professor of Latin..	\$ 2,900.00
J. Raymond Brackett, Ph.D., Dean of the Graduate School; Professor of Comparative and English Lit- erature	2,900.00
Ira M. DeLong, M.A., Professor of Mathematics	2,700.00
Charles C. Ayer, Ph.D., Professor of Romance Lan- guages	2,700.00
George Norlin, Ph.D., Professor of Greek	2,700.00
Donald McFayden, M.A., S.T.B., Instructor in Greek..	.....
Francis Ramaley, Ph.D., Professor of Biology	2,700.00
Melanchthon F. Libby, Ph.D., Professor of Philosophy	2,600.00
John B. Ekeley, Ph.D., ScD., Professor of Chemistry...	2,700.00
Russell D. George, M.A., Professor of Geology	2,700.00
Theodore D. A. Cockerell, Professor of Zoology	1,050.00
George M. Chadwick, Professor of Music	1,400.00

James F. Willard, Ph.D., Professor of History	\$ 2,100.00
Carl C. Eckhardt, Ph.D., Acting Professor of History.. ..	.....
Oliver C. Lester, Ph.D., Professor of Physics	2,500.00
Frank E. Thompson, B.A., Secretary of the College of Education; Professor of Education	2,500.00
Junius Henderson, B.A., Professor of Natural History..	2,400.00
John S. McLucas, M.A., Professor of English	2,100.00
Grace F. van Sweringen, Ph.D., Professor of Germanic Languages	1,900.00
Milo G. Derham, Ph.D., Professor of Latin	1,600.00
Lawrence W. Cole, Ph.D., Professor of Psychology	2,100.00
Loran D. Osborn, Ph.D., Director of Extension; Profes- sor of Sociology	2,000.00
Frederick A. Bushee, Ph.D., Professor of Economics and Sociology	2,000.00
S. Antoinette Bigelow, M.A., Dean of Women; Assistant Professor of Literature	1,400.00
Ralph D. Crawford, M.A., Assistant Professor of Geology	1,500.00
Charles H. Williams, B.A., B.S. in Ed., Assistant Pro- fessor of Education	1,600.00
Harry A. Curtis, B.S. (Ch.E.), M.A., Assistant Professor of Chemistry	1,500.00
Fordyce P. Cleaves, M.A., Instructor in Oratory.....	550.00
William R. Brackett, B.A., Instructor in Physics.....	800.00
William V. Casey, Instructor in Education.....	225.00
S. Griswold Morley, Ph.D., Instructor in Romance Lan- guages	1,000.00
Max M. Ellis, Ph.D., Instructor in Biology.....	1,100.00
Arthur G. Vestal, B.A., Instructor in Biology.....	800.00
Charles F. Poe, M.A., Instructor in Chemistry.....	.....
Samuel S. Kingsbury, Ph.D., Instructor in Education...	225.00
Elva Cooper, M.A., Instructor in Mathematics.....	800.00
J. Warren Stehman, M.A., Instructor in Commerce.....	800.00
Paul M. Dean, M.A., Instructor in Chemistry.....	800.00
Ethel R. Ford, B.A., Instructor in English.....	800.00
William McLeod Raine, B.A., Instructor in Journalism..	400.00
William E. Dittman, C.P.A., Instructor in Accounting...	150.00
Donald McFayden, M.A., S.T.B., Instructor in History..	200.00
Lorena Underhill, M.A., Instructor in Philosophy.....	800.00
William Bethke, M.A., Instructor in Economics.....	800.00

George Rohwer, B.A., Instructor in Chemistry.....	\$ 800.00
Philip G. Worcester, M.A., Instructor in Geology.....	800.00
Leonard P. Fox, M.A., Instructor in History.....	800.00
John H. V. Finney, B.S., Instructor in Physics.....	800.00
Victoria H. Hazlitt, B.A., Instructor in Education.....	720.00
Jessie Hutsinpillar, M.A., Instructor in English.....	800.00
Marie Sorenson, M.A., Instructor in English.....	800.00
John Gutknecht, B.A., Instructor in English.....	800.00
Ruth M. Shelledy, M.A., Instructor in German.....	800.00
William F. Baur, Ph.B., Instructor in German.....	800.00
Homer S. McMillan, B.A., Instructor in Education.....	360.00
Maud Craig, B.A., Assistant in Latin.....	200.00
Georgia L. Field, M.A., Assistant in English Literature.	700.00
Carl E. Salomon, M.A., Assistant in English Literature.	300.00
Claribel Kendall, B.A., Assistant in Mathematics.....	600.00
Ida M. Johnson, B.A., Assistant in Romance Languages.	500.00
Maud Craig, B.A., Assistant in Greek.....	.....
Winthrop W. Leach, Assistant in Chemistry.....	100.00
Esbon Y. Titus, Assistant in Chemistry.....	100.00
Eloie C. Dyer, B.A., Assistant in History.....	400.00
Cornelius J. Marvin, Assistant in Physics.....	300.00
Norma E. LeVeque, Assistant in Education	135.00
Estelle M. Kyle, Assistant in Education.....	135.00
Fannie J. Boswell, M.A., Assistant in English.....	100.00
Helen Hunter, B.A., Assistant in English.....	100.00
Caroline L. Habermann, B.A., Assistant in German.....	200.00
Edna Reynolds, B.A., Assistant in Psychology.....	100.00
Rose Ganson, Assistant in Psychology.....	100.00
Obie Sue Pulliam, Assistant in Psychology.....	100.00
James W. Bell, B.A., Assistant in Economics.....	300.00
Pearl Smith, B.A., Dean's Secretary.....	630.00
Clerks College of Education.....	744.90
	<hr/>
	\$78,624.90

Summer School.

Twenty-seven instructors	\$ 4,090.00
Lecturers	220.00
Clerical help	40.00
	<hr/>
	\$ 4,350.00

College of Engineering.

Milo S. Ketchum, C.E., Dean; Professor of Civil Engineering	\$ 2,900.00
Herbert S. Evans, E.E., Professor of Electrical Engineering	2,400.00
John A. Hunter, M.E., Professor of Mechanical Engineering	2,200.00
Saul Epstein, Ph.D., Professor of Engineering Mathematics	1,600.00
David R. Jenkins, E.E., Assistant Professor of Electrical Engineering	1,500.00
Clement C. Williams, C.E., Assistant Professor of Civil Engineering	1,800.00
A. W. Ainsworth, Research Assistant in Electrical Engineering	1,200.00
Guy W. Smith, B.S. (E.E.), M.S., Instructor in Engineering Mathematics	900.00
Harland C. Woods, C.E., Instructor in Engineering Drawing	1,200.00
Whitney C. Huntington, C.E., Instructor in Civil Engineering	900.00
Frank S. Bauer, B.S. (M.E.), Instructor in Mechanical Engineering	900.00
Herbert D. McCaslin, B.S. (M.E.), Instructor in Mechanical Engineering	800.00
Carl M. Duff, B.S. (C.E.), M.S., Instructor in Engineering Mathematics	800.00
Frank L. Brown, B.S. (C.E.), Instructor in Civil Engineering	800.00
Lynn R. Leonard, B.S. (E.E.), Instructor in Electrical Engineering	800.00
Charles G. Martinson, B.A., B.S., Instructor in Mechanical Engineering	800.00
Ivan C. Crawford, B.S. (C.E.), Instructor in Civil Engineering	800.00
Walter F. Mallory, Assistant in Mechanical Engineering	200.00
C. J. Diehl, Assistant in Engineering Drawing.....	400.00
_____, Assistant in Engineering Drawing...	100.00
Irma Lindsley, Dean's Secretary.....	240.00
Additional clerical help.....	379.30
	<u>\$23,619.30</u>

School of Medicine.

William P. Harlow, B.A., M.D., Dean	\$ 1,000.00
James R. Arneill, B.A., M.D., Professor of Medicine (Clinical Medicine) .....	.....
William C. Bane, M.D., Professor of Oto-laryngology....	.....
Melville Black, M.D., Professor of Ophthalmology.....	.....
Sherman G. Bonney, M.A., M.D., Professor of Medicine. ....	.....
Clough T. Burnett, M.D., Professor of Bacteriology.....	950.00
T. Mitchell Burns, M.D., Professor of Obstetrics.....	.....
F. Gillett Byles, M.A., M.D., Professor of Hygiene.....	.....
George H. Cattermole, M.D., Professor of Medicine (Pediatrics) .....	.....
John Chase, B.A., M.D., Professor of Ophthalmology and Otology .....	.....
Samuel B. Childs, B.A., M.D., Professor of Roentgenology .....	.....
David H. Coover, M.D., Professor of Ophthalmology....	.....
Richard W. Corwin, M.D., LL.D., Professor of Surgery..	.....
William B. Craig, M.D., Professor of Surgery.....	.....
William H. Davis, M.D., Professor of Dermatology and Genito-Urinary Diseases .....	.....
John Bernard Ekeley, Ph. D., Sc.D., Professor of Chem- istry.....(salary noted elsewhere)	.....
Charles S. Elder, M.D., Professor of Surgery (Gyne- cology) .....	.....
John M. Foster, M.D., Professor of Oto-laryngology....	.....
Leonard Freeman, B.S., M.A., M.D., Professor of Surgery .....	.....
Luman M. Giffin, M.D., Professor of Surgery.....	.....
Oscar M. Gilbert, M.D., Professor of Medicine (Clinical Medicine) .....	.....
Carbon Gillaspie, M.D., Professor of Anatomy.....	1,900.00
Josiah N. Hall, B.S., M.D. Professor of Medicine.....	.....
Horace G. Harvey, B.A., M.D., Professor of Surgery....	.....
Edward Jackson, M.A., M.D., Professor of Ophthalmology	500.00
Walter A. Jayne, M.D., Professor of Surgery (Gynecol- ogy and Abdominal Surgery).....	.....
Moses Kleiner, M.D., Professor of Therapeutics.....	.....
Robert Levy, M.D., Professor of Oto-laryngology.....	.....
Charles B. Lyman, M.D., Professor of Surgery.....	.....
Francis H. McNaught, M.D., Professor of Obstetrics....	.....

Arthur J. Markley, D.D.S., M.D., Professor of Dermatology	
William C. Mitchell, M.D., Professor of Bacteriology... ..	
George E. Neuhaus, M.D., Professor of Neurology and Psychiatry	
George B. Packard, M.D., Professor of Surgery (Orthopedics)	
Alvin R. Peebles, M.D., Professor of Preventive and Experimental Medicine	\$ 2,000.00
Howell T. Pershing, M.S., M.D., LL.D., Professor of Neurology and Psychiatry.....	
James H. Pershing, B.A., Professor of Medical Jurisprudence	
Charles A. Powers, M.A., M.D., Professor of Surgery (Clinical Surgery)	
E. Barber Queal, M.D., Professor of Physiology.....	250.00
Francis Ramaley, Ph.D., Professor of Histology and Embryology.....(salary noted elsewhere)	
Edmund J. A. Rogers, M.A., M.D., Professor of Surgery.	
William J. Rothwell, M.D., Professor of Medicine.....	
Henry Sewall, Ph.D., M.D., Professor of Medicine.....	
William H. Sharpley, M.D., Professor of Medicine (Contagious Diseases)	
Charles F. Shollenberger, M.D., Professor of Medicine (Pediatrics)	
George H. Stover, M.D. Professor of Roentgenology....	
Thomas E. Taylor, B.A., M.D., Professor of Obstetrics..	
James C. Todd, B.Ph., M.D., Professor of Pathology....	1,900.00
Charles B. Van Zant, M.D., Professor of Physiology....	
Homer C. Washburn, B.S., Ph.C., Professor of Pharmacy	1,900.00
Ross C. Whitman, B.A., M.D., Professor of Pathology...	2,200.00
Herbert B. Whitney, B.A., M.D., Professor of Medicine (Pediatrics)	
Newton Wiest, M.D., Professor of Dermatology.....	
Frost C. Buchtel, M.D., Assistant Professor of Surgery.	
Jacob Campbell, M.D., Assistant Professor of Surgery..	100.00
Edward F. Dean, M.D., Assistant Professor of Surgery (Clinical Surgery)	
Walter W. Reed, M.D., Assistant Professor of Obstetrics	

Aubrey H. Williams, M.D., Assistant Professor of Surgery (Clinical Surgery).....	.....
Theodore D. A. Cockerell, Lecturer on Comparative Anatomy.....(salary noted elsewhere)	
Edward Delehanty, M.D., Lecturer on Neurology.....	.....
Oliver Lyons, M.D., Lecturer on Genito-Urinary Diseases .....	.....
Alfred R. Seebass, Ph.G., M.D., Lecturer on Life Insurance Examinations .....	.....
John W. Amesse, M.D., Instructor in Medicine.....	.....
*Henry S. Denison, B.A., M.D., Instructor in Medicine..\$	500.00
Clay E. Giffin, B.A., M.D., Instructor in Surgery.....	.....
Philip Hillkowitz, B.S., M.D., Instructor in Medicine (Serum Therapy) .....	.....
Clarence B. Ingraham, B.Ph., M.D., Instructor in Obstetrics	250.00
Tracy R. Love, B.Ph., M.D., Instructor in Physiology and Pharmacology	500.00
Frank R. Spencer, B.A., M.D., Instructor in Ophthalmology and Oto-laryngology.....	.....
Edward B. Trovillion, M.D., Instructor in Anatomy.....	250.00
Louie Croft Boyd, Instructor in Nursing.....	.....
Edith K. Ross, Assistant in Pathology.....	660.00
Thomas F. Walker, M.D., Assistant in Pathology.....	600.00
Morris Katzman, Laboratory Assistant.....	240.00
Constantine F. Kemper, B.A., Assistant in Bacteriology	300.00
Stella McIntire, Clerk.....	720.00
R. G. Smith, Drug Clerk.....	300.00
Additional work in Neurology.....	500.00
	<hr/>
	\$17,520.00

University Hospital.

Mabel Huntley, Matron.....\$	660.00
Alma E. Barnaby, Head Nurse.....	600.00
Twelve Nurses	1,152.00
Hospital employees, as cook, laundress, maids, porter..	1,881.60
	<hr/>
	\$ 4,293.60

*Deceased.

School of Law.

John D. Fleming, B.A., LL.B., LL.D., Dean, Professor of Law; Associate Judge of Practice Court	\$ 2,900.00
Moses Hallett, LL.D., Dean and Professor of American Constitutional Law, <i>Emeritus</i> .....	.....
John Campbell, M.A., LL.B., LL.D., Dean <i>Emeritus</i> ; Professor of Law of Private and Municipal Corporations .....	.....
Albert A. Reed, LL.B., Professor of Law	1,400.00
William H. Bryant, B.S., LL.B., Professor of Law.....	.....
Edwin Van Cise, Professor of Law.....	250.00
William H. Pease, B.A., LL.B., Professor of Law.....	2,300.00
James F. Willard, Ph.D., Professor of History.....	.....(salary noted elsewhere)
Fred G. Folsom, B.A., LL.B., Instructor in Law; Judge of Practice Court	1,000.00
Hugh Butler, Lecturer on Common Law Pleading.	
Robert S. Morrison, Lecturer on Laws of Mines and Mining.	
Charles S. Thomas, LL.B., Lecturer on Law of Evidence.	
Lucius M. Cuthbert, M.A., LL.B., Lecturer on Roman Law.	
John A. Riner, LL.B., Lecturer on International Law.	
Charles D. Hayt, Lecturer on Law of Taxation.	
Willard J. White, M.A., M.D., Lecturer on Medical Jurisprudence.	
Ernest L. Williams, LL.B., Lecturer on Appellate Procedure.	
James W. McCreery, Lecturer on Law of Irrigation and Water Rights.	
John E. Robinson, Lecturer on Bankruptcy.	
Harry S. Silverstein, B.A., Lecturer on Criminal Procedure.	
Eugene A. Bond, Law Librarian	150.00
Dudley I. Hutchinson, Assistant Law Librarian	50.00
George H. Shaw, Assistant Law Librarian	50.00
Lyman T. Elwell, Stenographer	50.00
Lyman T. Elwell, Court Clerk	25.00
Expenses Court	20.00
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	\$ 8,195.00

Library.

C. Henry Smith, Ph.B., Librarian (12 months).....	\$ 1,500.00
Faith E. Foster, B.A., Assistant Librarian (12 months)	1,000.00
Elizabeth M. Phillips, Assistant Librarian (12 months)	720.00
Emma A. Jackson, B.A., Assistant Librarian (12 months)	600.00
Floyd B. Odum, Assistant in Library (12 months).....	300.00
Fred W. Varney, Assistant in Library (9 months).....	150.00
Fred W. Varney, Assistant in Library (3 months).....	90.00
	<hr/>
	\$ 4,360.00

Physical Training.

Frank R. Castleman, B.S., Director of Physical Training and Athletics	\$ 1,500.00
Mary A. Lake, M.D., Physical Examiner for Women in Gymnasium	30.00
Edna Potter, Instructor in Gymnasium	350.00
Elva Cooper, M.A., Assistant in Gymnasium.....	175.00
Dudley I. Hutchinson, Assistant in Gymnasium.....	60.00
Howard A. DeMarais, Assistant in Gymnasium.....	60.00
Accompanist	25.00
	<hr/>
	\$ 2,200.00

Other Employees.

Joseph Klemme, Superintendent of Buildings and Grounds	\$ 1,120.00
William W. Parce, Landscape Gardener	200.00
George R. Moore, Carpenter	900.00
John Gumeson, Carpenter	960.00
Dan E. Hayward, Employee on Campus	600.00
E. S. Garwood, Night Watchman	720.00
W. J. Albertson, Teamster	600.00
Abraham L. Smith, Janitor Main Building	600.00
Leo Teplitzky, Janitor Medical and Anatomy Buildings	540.00
S. A. Walker, Janitor Hale Building and Cottages.....	450.00
Duncan Wilkinson, Janitor Chemistry Building.....	315.00
E. B. Place, Janitor Museum Building.....	225.00
E. S. Morris, Janitor Shops	180.00
R. C. Morris, Janitor Library	180.00

John Mork, Janitor Engineering, Pharmacy, and Law Buildings and Gymnasium	\$ 540.00
Mrs. Mary Coffee, Maid Woodbury Hall and Cottages	342.00
W. W. Bryant, Janitor Auditorium	540.00
P. F. Keegan, Janitor Medical Building (Denver).....	720.00
Ray R. Taylor, Fireman (Denver).....	200.00
Fred W. Varney, Janitor Library (3 months).....	36.00
Charles E. Cummings, Engineer	1,320.00
Leon Webber, Plumber	720.00
John Burgner, Fireman	720.00
Tom Storm, Fireman	720.00
E. E. Barrows, Fireman	720.00
Roy W. Bushee, Helper in Power Plant	600.00
Other employees for regular care of buildings and grounds	3,255.61
	<hr/>
Summary.	\$18,023.61

Administration	\$ 13,246.59
College of Liberal Arts	78,624.90
Summer School	4,350.00
College of Engineering	23,619.30
School of Medicine	17,520.00
University Hospital	4,293.60
School of Law	8,195.00
Library	4,360.00
Physical Training	2,200.00
Other Employees	18,023.61
	<hr/>
	\$174,433.00

FINANCIAL HISTORY.

Receipts and Expenditures of the University of Colorado from the Beginning, 1874, to October 1, 1910.

Some of the early records do not give the complete information necessary to make a perfect balance for the entire financial history of the University, but the apparent discrepancy is very small.

The division of money between "general expense fund" and "building fund" is only approximately accurate. Usually only the cost of new buildings and of very important improvements on buildings is classified under the expense for build-

ings. The cost of minor improvements on buildings, repairs, improvements on grounds, furniture, and apparatus, is placed under general expenses.

Receipts and Disbursements.

YEARS.	RECEIPTS.	DISBURSEMENTS.
	Bldgs.	
1874-	Sp. \$15,000.00	Bldgs. \$22,500.00
Nov. 1	Sp. 7,500.00	Bldgs. 15,000.00
1876	Gift 15,000.00	
	Bldgs. <u>\$37,500.00</u>	
	Exp.	
1876-	1-5 m. \$ 8,682.49	Exp. \$10,368.40
1878	Gift 2,500.00	Exp. \$ 2,500.00
	Bldgs.	Bldgs. 4,346.60
	1-5 m. \$ 4,346.60	
	Exp. <u>\$11,182.49</u>	
	Bldgs. 4,346.60	
	Exp.	
1878-	1-5 m. \$23,899.08	Exp. \$23,899.08
1880		
	Exp.	
1880-	1-5 m. \$29,966.31	Exp. \$29,966.31
1882		
	Exp.	
1882-	1-5 m. \$44,128.90	Exp. \$45,930.03
1884		Bldgs. 19,910.81
	Bldgs.	
	1-5 Sp. \$19,600.00	
	Exp.	
1884-	1-5 m. \$42,626.00	Exp. \$46,866.79
1886	Land 7,380.00	Bldgs. 8,794.26
	Fees 10.00	
	Bldgs.	
	1-5 Sp. <u>\$22,971.95</u>	
	Exp. <u>\$50,016.00</u>	
	Bldgs. 22,971.95	

YEARS.	RECEIPTS.	DISBURSEMENTS.
	Exp.	
1886-	1-5 m. \$ 37,957.00	Exp. \$ 47,990.03
1888	Land 10,360.46	Bldgs. 10,000.00
	Fees 1,377.36	
	Bldgs.	
	1-5 Sp. \$ 337.16	
	1-5 m. 10,000.00	
	<hr/>	
	Exp. \$ 49,694.82	
	Bldgs. 10,337.16	
	Exp.	
1888-	1-5 m. \$ 47,800.00	Exp. \$ 64,273.57
1890	Land 4,250.00	Bldgs. 21,691.19
	Fees 1,148.03	
	Bldgs.	
	1-5 Sp. \$ 86.69	
	1-5 m. 22,000.00	
	<hr/>	
	Exp. \$ 53,198.03	
	Bldgs. 22,086.69	
	Exp.	
1890-	1-5 m. \$ 63,420.00	Exp. \$ 80,405.55
1892	Land 9,977.47	Bldgs. 45,203.81
	Fees 1,670.15	
	Bldgs.	
	1-5 Sp. \$ 83.77	
	Sp. 30,000.00	
	1-5 m. 15,000.00	
	<hr/>	
	Exp. \$ 75,067.62	
	Bldgs. 45,083.77	

YEARS.	RECEIPTS.	DISBURSEMENTS.
	Exp.	
1892-	1-5 m. . . . \$ 79,166.86	Exp. \$102,391.35
1894	Land 5,034.33	Bldgs. 25,500.00
	1-10 Sp. . . . 12,500.00	
	Sp. 8,500.00	
	Fees 1,934.60	
	Bldgs.	
	Sp. \$ 25,500.00	
	Exp. \$107,135.79	
	Bldgs. 25,500.00	
	Exp.	
1894-	1-5 m. \$ 67,877.52	Exp. \$124,278.73
1896	Land 9,498.28	Bldgs. 8,000.00
	1-10 Sp. 10,102.91	
	Sp. 31,507.49	
	Fees 5,626.60	
	Bldgs.	
	Sp. \$ 8,000.00	
	Exp. \$124,612.80	
	Bldgs. 8,000.00	
	Exp.	
1896-	1-5 m. \$ 93,837.25	Exp. \$153,272.18
1898	Land 6,901.80	Bldgs. 36,658.81
	Sp. 16,516.73	
	Fees 12,755.38	
	Bldgs.	
	Sp. \$ 492.51	
	Land trans.. 36,658.81	
	Gift City &	
	Co. 3,000.00	
	Exp. \$130,011.16	
	Bldgs. 40,151.32	

YEARS.	RECEIPTS.	DISBURSEMENTS.
	Exp.	
1898-	1-5 m. . . . \$ 72,954.60	Exp. \$159,388.04
1900	Land 3,886.19	Bldgs. 7,776.03
	1-10 Sp. '93. . . . 132.54	
	Sp. '97 23,483.27	
	Sp. 62,434.98	
	Fees 24,296.85	
	Bldgs.	
	Gift City &	
	Co. \$ 5,000.00	
	Exp. \$187,188.43	
	Bldgs. 5,000.00	
	Exp.	
1900-	1-5 m. \$104,268.70	Exp. \$189,422.00
1902	Land 4,887.28	
	Sp. '99 2,050.00	
	Sp. 80,408.43	
	Fees 32,576.60	
	Exp. \$224,191.01	
	Exp.	
1902-	1-5 & 2-5 m. \$ 54,516.56	Exp. \$237,307.64
1904	Land 1,018.67	Bldgs. 134,265.30
	Sp. '01 36,090.54	
	Fees 40,811.31	
	Bldgs.	
	2-5 m. \$134,265.30	
	Exp. \$132,437.08	
	Bldgs. 134,265.30	
	Exp.	
1904-	2-5 m. \$256,327.23	Exp. 305,475.80
1906	Land 3,517.70	Bldgs. 18,894.35
	Fees 52,103.16	
	Bldgs.	
	2-5 m. \$ 18,894.35	
	Exp. \$311,948.09	
	Bldgs. 18,894.35	

YEARS.	RECEIPTS.	DISBURSEMENTS.
	Exp.	
1906-	2-5 m. \$283,650.72	Exp. \$354,922.67
1908	Land 1,727.29	Bldgs. 68,555.08
	Sp. '99 7,055.83	
	Sp. '03 45,713.33	
	Sp. 31,444.92	
	Fees 64,268.58	
	Bldgs.	
	Sp. \$ 68,555.08	
	Exp. \$433,860.67	
	Bldgs. 68,555.08	
	Exp.	
1908-	2-5 m. \$291,326.17	Exp. \$424,035.53
1910	Land 7,807.12	Bldgs. 147,061.75
	Land trans.. 24,044.29	Bldgs. 51,000.00
	Fees 94,169.40	Bldgs. 74,977.75
	Bldgs.	
	2-5 m. \$ 12,892.46	
	Sp. 176,000.00	
	Gift 51,000.00	
	Gift 74,977.75	
	Exp. \$417,346.98	
	Bldgs. 314,870.21	
1874-	Other	
1910	gifts \$ 31,668.27	Gifts \$ 31,668.27
	Total \$3,154,497.71	
	Cash (Gen. Fund) . . \$ 14,687.15	
	Cash (Bldg. F'd) . . . 41,830.71	
	Error to Balance . . . 3,700.39	
Grand Totals	\$3,214,715.96	\$3,214,715.96

Receipts 1874-1910.

Regular tax fund (1-5 and 2-5 m.)	\$1,819,804.10
Land fund	76,246.59
Land (transfer)	60,703.10
Special appropriations	742,068.13
Student fees, etc.	332,748.02
Gifts	183,146.02
	<hr/>
	\$3,214,715.96

Payments 1874-1910.

Maintenance	\$2,434,361.97
Buildings	720,135.74
Error to balance	3,700.39
Cash on hand (General fund)	14,687.15
Cash on hand (Building fund)	41,830.71
	<hr/>
	\$3,214,715.96

Total Receipts for Maintenance.

Mill rate (Tax fund, 1-5 and 2-5 m.)..	\$1,602,405.39
Land	76,246.59
Special	367,940.97
Fees	332,748.02
Land (transfer)	24,044.29
Gifts	34,168.27
	<hr/>
	\$2,437,553.53

Total Receipts for Buildings.

Mill rate (Tax fund, 1-5 and 2-5 m.)....	\$ 217,398.71
Special	374,127.16
Land (transfer)	36,658.81
Gifts	148,977.75
	<hr/>
	\$ 777,162.43
	<hr/>
	\$3,214,715.96

SECRETARY'S FEE REPORT.

From October 1, 1910, to October 1, 1912.

Receipts.

Cash on hand last report	\$ 180.64
Cash in hands, H. S. Visitor	100.00
Tuitions and fees from College of Liberal Arts and Col- lege of Engineering	38,195.50
Tuitions and fees from Law School.....	10,783.66
Tuitions and fees from Medical School.....	18,398.50
Hospital receipts	19,937.24
Summer School tuitions and fees.....	8,023.00
Chemistry fees	1,675.40
Sundry laboratory fees	2,390.54
Miscellaneous receipts	3,673.57
Associated Students of the University of Colorado...	12,087.00
Room rents	1,981.50
Deposits	260.00
Fines	429.90
	<hr/>
	\$118,116.45

Deposits with Treasurer, Etc.

Deposited with University Treasurer.....	\$117,723.40
Cash in hands, H. S. Visitor	100.00
Cash on hand	293.05
	<hr/>
	\$118,116.45

FRANK H. WOLCOTT,
Secretary Board of Regents.

REPORT ON PERMANENT FUND.

From October 1, 1910, to October 1, 1912.

By balance, October 1, 1910:

Invested warrants	\$27,763.87
Cash available	380.54

\$28,144.41

By receipts, October 1, 1910, to October 1, 1912	\$ 4,396.74	
To payment to University Treasurer.....		\$ 1,060.52
To balance, October 1, 1912:		
Unavailable warrants invested		27,763.87
Cash available		3,716.76
	<hr/>	<hr/>
	\$32,541.15	\$32,541.15

ROADY KENEHAN,
State Treasurer.

REPORT ON UNIVERSITY LANDS.

October 1, 1912.

Total acres owned, October 1, 1912	11,005.96
Total acres in Reservation	4,200.00
Total acres outside of Reservation	6,805.96
Total acres sold from October 1, 1910, to October 1, 1912	None
Total acres now rented	5,705.96

Total amount turned over to the State Treasurer by the State Board of Land Commissioners for the credit of the University Permanent Fund between the dates of October 1, 1910, and October 1, 1912. (This is made up of all payments on the purchase price of lands sold during this time, as well as the annual payments on lands previously sold and now covered by certificates of purchase) \$4,396.74

Total amount turned over to the State Auditor by the State Board of Land Commissioners for the credit of the University Income Fund between the dates of October 1, 1910, and October 1, 1912. (This includes all rentals for lands leased, and interest upon the deferred payments on certificates of purchase covering lands sold) \$3,318.77

B. L. JEFFERSON,
Register, State Board of Land Commissioners.

REPORT OF AUDITOR OF STATE.

From October 1, 1910, to October 1, 1912.

To the Board of Regents, University of Colorado:

I beg to advise you that the records in this office show the following totals paid the University of Colorado between dates mentioned:

From October 20, 1910, to October 3, 1912, paid from the General Tax Fund	\$315,556.19
From April 20, 1911, to October 21, 1912, paid from Land Income Fund	3,318.77
October 10, 1911, paid from Land Permanent Fund...	1,060.52
January 22 and October 20, 1912, two payments were made out of the special appropriation for maintenance, each of \$15,000.00, or a total of.....	30,000.00
Also on above dates two payments were made out of the Macky Building or Loan Fund of \$22,500.00 each, or a total of.....	45,000.00

You are hereby authorized to use the above figures in your report.

Yours truly,

M. A. LEDDY,
Auditor of State.

By T. E. McILDUFF,
Deputy.

TREASURER'S REPORT.

From October 1, 1910, to October 1, 1912.

Receipts.

Cash on hand October 1, 1910.....	\$ 14,687.15
From State Treasurer, 2-5 mill rate.....	315,556.19
From State Treasurer, Land Income.....	3,318.77
From State Treasurer, Land Permanent.....	1,060.52
From State Treasurer, Special Appropriation.....	30,000.00
Secretary, Board of Regents.....	117,723.40
	<hr/>
	\$482,346.03

Payments.

Warrants paid October 1, 1910, to October 1, 1912.....	\$463,186.12
Balance October 1, 1912.....	19,159.91
	<hr/>
	\$482,346.03

CHARLES H. CHENEY,

Treasurer, University of Colorado.

REPORT ON BUILDING FUNDS.

To October 1, 1912.

Fund of \$176,000.00 Voted by the Seventeenth General Assembly.
On Heating, Lighting and Power Plant; Wings of Hale
Science Building; West Wing of a Science and
Museum Building:

Paid in previous period	\$134,169.29
Paid in this period	41,830.71
	<hr/>
	\$176,000.00

Fund of \$90,000.00, "Loan," for Macky Auditorium, Voted by the
Eighteenth General Assembly.

Received from State	\$ 45,000.00
Payments	38,802.91
	<hr/>
Balance	\$ 6,197.09

CHARLES H. CHENEY,

Treasurer, University of Colorado.

FRANK H. WOLCOTT,

Secretary, Board of Regents.

REPORT ON MACKY BEQUEST.

From August 3, 1909, to October 1, 1912.

Estimated Value.

Real Estate (estimated)	\$ 30,500.00
Personal Property (appraised)	197,449.00
Cash	10,171.43
In hands of Executor, about (of the \$47,000.00 part	
has been paid for expenses)	47,000.00
Interest, rents, coupons, dividends, etc. (collected to	
date)	15,311.87
	<hr/>
	\$300,432.30

Statement.

Available Funds—

Cash	\$ 10,171.43	
Property converted	159,298.95	
Collections to date	15,311.87	
	<hr/>	\$184,782.25
Loan		4,000.00
Warrant unpaid		29,400.00
		<hr/>
		\$218,182.25
On Auditorium	\$206,768.29	
Expenses Estate	9,494.39	
In Bank	1,919.57	
	<hr/>	\$218,182.25

FRANK H. WOLCOTT,
Secretary, Board of Regents.

SECRETARY'S REPORT.

From October 1, 1910, to October 1, 1912.

Warrants issued in payment of expenses of the several departments of the University, during the biennial period, October 1, 1910, to October 1, 1912:

General Administration—Regents' service and mileage, President's and Secretary's salaries, salaries of Registrar and his assistants, and all expenses of Registrar's office	\$ 28,143.27
College of Liberal Arts—Instruction and expense.....	136,796.04
Biology—Books, apparatus, supplies	1,470.00
Chemistry—Books, apparatus, supplies	4,676.60
Economics—Books	207.70
Education—Books, supplies (including clerical help in College of Education)	1,902.84
English—Books	259.36
Geology—Books, apparatus, supplies	1,037.43
Germanic Languages—Books	295.76
Greek—Books	167.57
History—Books	321.52

Latin—Books	\$ 125.74
Literature—Books, apparatus	130.95
Mathematics—Books, apparatus	244.60
Museum—Books, apparatus, specimens, etc.....	491.92
Music—Books, supplies	57.57
Philosophy—Books, apparatus	190.19
Physics—Books, apparatus, supplies	1,206.89
Psychology—Books, apparatus, supplies	483.43
Romance Languages—Books	221.65
Zoology—Books, apparatus, supplies	154.67
College of Engineering—Instruction and expense.....	41,181.22
Civil Engineering—Books, apparatus, supplies.....	2,729.24
Electrical Engineering—Books, apparatus, supplies....	1,497.40
Mechanical Engineering—Books, apparatus, supplies..	1,800.63
Engineering Mathematics—Books, apparatus, supplies	123.68
General Engineering Drawing—Books, apparatus, sup- plies	273.16
Shops—Books, machinery, instruments, supplies.....	728.00
School of Medicine—Instruction, apparatus, supplies, pharmacy, hospital, dispensary, nurses' cottage and other expense (largely reimbursed by medical tuitions and hospital receipts)	55,517.55
School of Law—Instruction, library, and other expense (partly reimbursed by tuitions)	16,720.95
Summer School—Instruction and expense (largely re- imbursed by tuitions)	9,093.99
Library—Services, books, periodicals, binding and sup- plies	13,521.99
Physical Training—Salaries, apparatus and expense...	4,340.80
Buildings and Grounds— Salaries (janitors, heating and light- ing service, and care of grounds) ..	\$33,583.05
Repairs	5,492.00
Insurance	2,596.45
Water rent	1,653.87
Fuel	16,605.67
Horses	650.63
Tools	294.38
Unclassified	4,522.83
	<hr/> \$ 65,398.88

Buildings and Grounds—

New Buildings (Item)	\$ 251.61
Geology wing of Museum Building (out of General Fund)	6,715.49
Improvements on Buildings.....	5,014.65
Improvements on Grounds.....	2,596.46
	<hr/>
	\$ 14,578.21

Furniture and Supplies	\$ 9,310.08
Printing	10,628.10
Extension	82.85
Stationery and Postage	3,928.17
Heat and Light Supplies, etc.....	2,625.07
Telephone and Telegraph	1,433.15
High School Visitation, Lectures by Faculty members, etc.	3,000.36
Advertising	1,441.62
Refunds (including fees to "Associated Students")....	12,126.87
General Unclassified (including interest).....	10,295.76
	<hr/>
Total for Biennial Period	\$460,963.43

Warrants issued not paid by October 1, 1910*.....	\$ 5,197.98
Warrants issued not paid by October 1, 1912.....	2,975.29
	<hr/>
	\$ 2,222.69
Warrants issued from October 1, 1910, to October 1, 1912	\$460,963.43
Add	2,222.69
	<hr/>
Sum paid by Treasurer	\$463,186.12

Total expenditure for Biennial Period	\$460,963.43
On new buildings (Museum)	6,715.49
	<hr/>

*In the Biennial Report of 1908-1910 on page 85 the item "warrants outstanding October 1, 1908, paid, \$2,514.58" is \$538.55 less than the warrants outstanding in the previous report (\$3,053.13). Payment on this amount is stopped as it seems to represent "dead" warrants.

For Running Expenses (including necessary improvements and repairs)	\$454,247.94
Average annual expenditure, 1911, 1912 (not including new buildings)	\$227,123.97

Respectfully submitted,

FRANK H. WOLCOTT,
Secretary, Board of Regents.

LIBRARIAN'S REPORT.

To the President and Board of Regents, University of Colorado:

Gentlemen: I have the honor to present herewith my report on the Library, covering the period from October 1, 1910, to October 1, 1912:

Additions.

The total number of volumes accessioned and placed in the Library during the two years is 11,489, derived from various sources, as follows:

Gifts (public documents)	2,258
Gifts (miscellaneous)	4,109

Total gifts accessioned	6,367
By binding	1,811
By purchase	3,311

Total accessions11,489

Donations.

Gifts have been received, entered and acknowledged as follows:

Books	*4,650
Miscellaneous—College catalogues, pamphlets, etc.....	11,831
Maps	198

Total16,679

Note—Donations are shown in detail on page 97.

* 4,650 gifts, plus 300 gifts not before accessioned, plus 1,417 pamphlets accessioned, equal 6,367.

Binding.

Periodicals (completed volumes)	1,374
Books issued in paper	397
Newspapers	40
Volumes rebound	267
	<hr/>
Total	2,078

Summary.

Number of volumes reported October 1, 1910.....52,562

Additions—

By gift	6,367	
By binding		
Gifts	476	
Purchase	1,335	1,811
	<hr/>	
By purchase	3,311	11,489
	<hr/>	<hr/>
Total		64,051

Deductions—**Cancelled**

Lost and worn out	331	
Sold	255	586
	<hr/>	
Less returned and found	22	564
	<hr/>	<hr/>

Total number of volumes in Library Oct.

1, 191263,487

Respectfully,

C. HENRY SMITH,
Librarian.

INVENTORY OF UNIVERSITY PROPERTY.

The following estimates, taken from inventories recently made, are presented as fair approximations:

Grounds.

Campus, sixty-three acres (estimated present value unimproved)	\$138,000.00
Twelve acres Stratton Field	12,000.00
Improvements, as fences, grading, roads, walks, pipes, drains, lake, trees, bridges, athletic field, (less pipes transferred to Power Plant invoice)	32,596.46
Total	\$182,596.46

Buildings.

(Approximate Cost of Each)

Macky Auditorium, expended up to October 1, 1912, about (cost completed about \$300,000)	\$245,000.00
Liberal Arts Building	40,000.00
Library (not including extension of heating pipes in grounds)	75,500.00
Gymnasium	6,000.00
President's House	8,000.00
Woman's Building	6,000.00
Men's Building	4,000.00
Woodbury Hall	25,000.00
Brick House (1037 Regent Street)	1,000.00
Hale Science Building	87,000.00
New Science Building	55,000.00
Chemistry Building	43,000.00
Pharmacy Building	2,000.00
Engineering Building	50,000.00
Engineering Shops Building	32,500.00
Heating, Lighting and Power Plant, including building, boilers, machinery, tunnel, pipes, wiring in building and tunnel, and extension of pipes and wires beyond tunnel, but outside of buildings	112,000.00
Medical Building	9,500.00
Anatomy Building (with refrigerator)	3,300.00
Hospital (furnished)	15,000.00
Nurses' Home	3,500.00
Simon Guggenheim Law Building	55,000.00
House, Supt. Buildings and Grounds (1045 Regent St.)	1,500.00

Observatory	\$ 200.00
Ice House	200.00
Stables and Sheds	1,700.00

Total Buildings\$881,900.00

Furniture, Implements.

Room furniture, as chairs, settees, desks, tables, movable cases, pictures, office furniture, hospital and dormitory equipment, shades, janitor's supplies, gymnasium apparatus (value)	\$ 46,611.00
Team, implements, tools, carpenter's supplies, plumber's tools and supplies (value)	5,343.75

Total\$ 51,954.75

Library.

Library (value)	\$ 90,588.00
-----------------------	--------------

Apparatus, etc.

College of Liberal Arts—

Biology (including Zoology)	\$ 4,393.45
Chemistry	12,052.95
Economics	172.00
Education	136.60
Geology	3,819.75
German	57.75
Greek	391.00
Latin	10.00
Literature	704.28
Mathematics	850.00
Museum	980.00
Music	231.04
Physics	11,976.85
Psychology	2,025.51
Romance Languages	10.00

College of Engineering—

Civil Engineering	15,107.85
Electrical Engineering (General)	11,439.97
Ainsworth Electrical Testing Laboratory.....	9,000.00

Mechanical Engineering and Shops.....	17,355.30
General Engineering Drawing	819.67
School of Medicine—	
Medical, Anatomy, and Pharmacy	8,397.79
Henry S. Denison Research Laboratory	1,045.35
Medical School (Denver)	7,900.00
Hospital	1,695.82
School of Law—	
Inventory	454.20
	<hr/>
	\$111,027.13

Collections.

Art	\$ 1,899.00
Geological and Mineralogical	5,714.00
Museum (including Biological collection)	19,985.00
	<hr/>
	\$ 27,598.00

Summary.

Grounds	\$ 182,596.46
Buildings	881,900.00
Furniture, Implements	51,954.75
Library	90,588.00
Apparatus, etc.	111,027.93
Collections	27,598.00
	<hr/>
	\$1,345,665.14

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UNIVERSITY OF COLORADO BULLETIN

Vol. XIV, No. 11.

Published Monthly by the Regents of the University of Colorado.
Entered at the Post Office, Boulder, Colorado, as second-class mail matter.

BIENNIAL REPORT OF THE REGENTS

1912-1914

UNIVERSITY OF ILLINOIS LIBRARY

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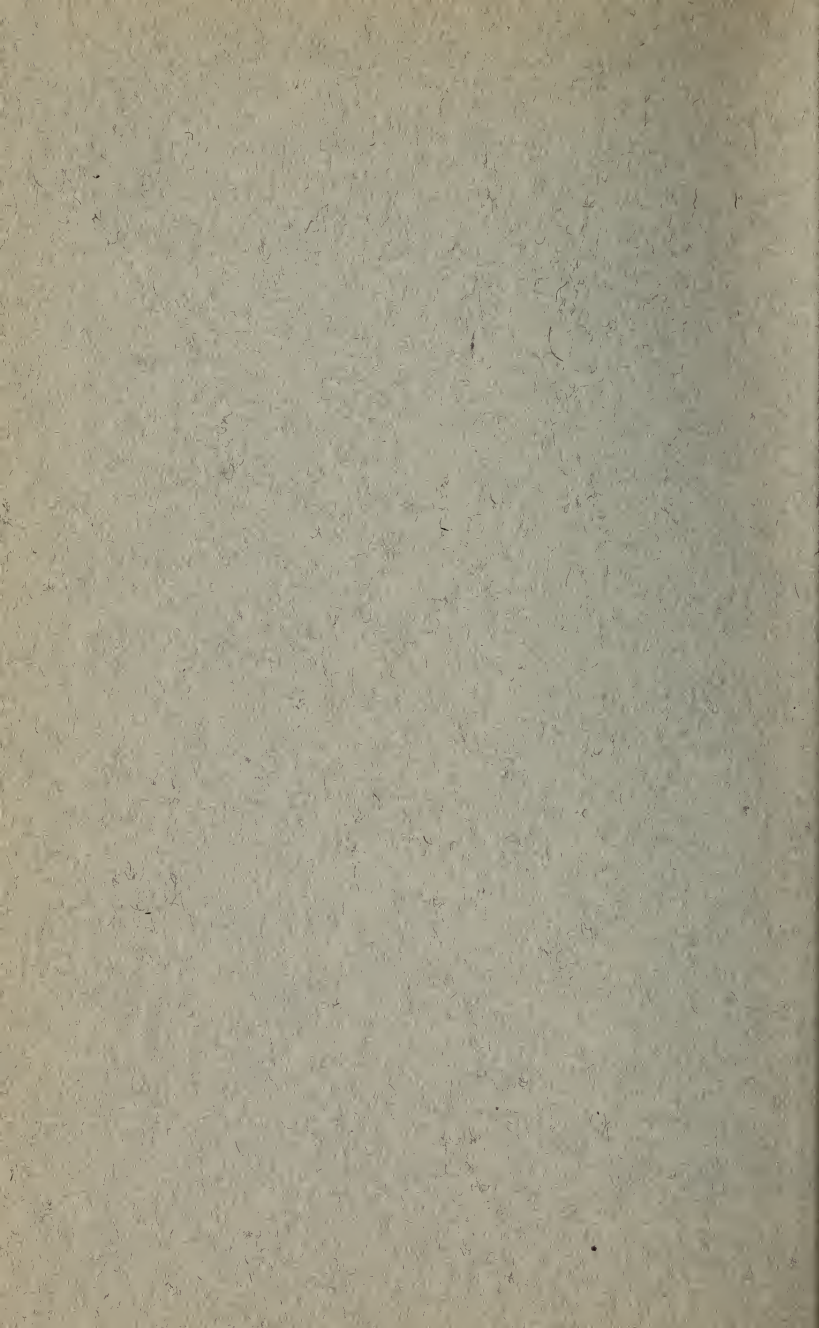
BOULDER, COLORADO, NOVEMBER, 1914

UNIVERSITY OF ILLINOIS

FEB 4 1915

General Series No. 76
Administration Series No. 5

~~PRESIDENT'S OFFICE~~



UNIVERSITY OF COLORADO BULLETIN

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NINETEENTH BIENNIAL REPORT OF THE REGENTS

1912-1914



BOULDER, COLORADO, NOVEMBER, 1914

General Series No. 76
Administration Series No. 5

DEC 6 8 1920

UNIVERSITY OF COLORADO

NINETEENTH BIENNIAL REPORT OF THE REGENTS, 1912-1914.

To the Governor of the State of Colorado, the State Library Commission, and the Twentieth General Assembly:

The Nineteenth Biennial Report, from October 1, 1912, to September 30, 1914, is herewith presented by the Regents of the University of Colorado.

Because of the somewhat contradictory requirements of the various statutes regarding reports from the University, this Biennial Report of the Regents is intended to cover the following:

President's report to the Regents.

Regents' report to the Governor of the State.

Librarian's report to the Library Commission.

It is a pleasure to report continued progress in all departments of the University of Colorado as will appear from the detailed statements below.

The Board regrets to report the deaths of Regent Samuel I. Hallett on September 14, 1913, and of Regent William H. Bryant on April 6, 1914. These vacancies were filled by the appointment of Julius C. Gunter, of Denver, in the place of Mr. Hallett, and Mrs. Minnie L. Harding, of Canon City, in the place of Mr. Bryant.

On December 3, 1913, President James H. Baker, after twenty-two years of devoted and distinguished service, presented his resignation as President of the University, to take effect December 31, 1913. This resignation was accepted by the Regents with deep regret, and in recognition of Dr. Baker's service he was elected President Emeritus of the University.

The vacancy so created was filled by the election of Dr. Livingston Farrand of Columbia University, New York, as presi-

dent. President Farrand assumed the duties of the office February 1, 1914.

During the interim between the resignation of President Baker and the arrival of President Farrand, Professor George Norlin was appointed Acting President of the University.

One of the chief administrative developments during the last biennial period has been the reorganization of the system of registration in the University and the concentration of this work in the hands of a new officer, the Registrar. Mr. Fred E. Hagen has been appointed to this office.

The financial and business operations of the University have also been systematized and placed under the direction of a Bursar. Mr. Frank H. Wolcott has been appointed to this office.

The additions to the physical plant of the University include certain progress on the Macky Auditorium and the installation of a temporary heating plant, thus making the building available, even in its unfinished condition, for necessary meetings.

Through the generous cooperation of friends of the University a wing has been added to the University Hospital and it is now in full operation.

The City and County of Boulder have united in building an Isolation Hospital on ground belonging to the University and adjacent to the University Hospital. The management of this Isolation Hospital is placed in the hands of the University under an agreement similar to that in force at the time the present hospital was established.

One wing of the Henry S. Denison Memorial Building has been completed. It is now equipped for medical research and was opened in September, 1914.

COLLEGES AND SCHOOLS OF THE UNIVERSITY.

The Colleges and Schools of the UNIVERSITY OF COLORADO are the following:

- I. COLLEGE OF LIBERAL ARTS:
Leading to the degree B.A.
- II. COLLEGE OF COMMERCE:
Leading to the degree B.A. and special certificate.
- III. COLLEGE OF EDUCATION:
Leading to the degree B.A. and special certificate.
- IV. SCHOOL OF SOCIAL AND HOME SERVICE:
Leading to certificate of work done.
- V. COLLEGE OF ENGINEERING:
Civil Engineering, leading to the degree B.S. (C.E.).
Railway Civil Engineering, leading to the degree B.S. (C. E.).
Electrical Engineering, leading to the degree B.S. (E.E.).
Railway Electrical Engineering, leading to the degree B.S. (E.E.).
Mechanical Engineering, leading to the degree B.S. (M.E.).
Railway Mechanical Engineering, leading to the degree B.S. (M.E.).
Chemical Engineering, leading to the degree B.S. (Ch.E.).
- VI. GRADUATE SCHOOL:
Leading to the degrees Ph.D. and M.A.; M.S., C.E., E.E., and M.E.; D.Oph., D.P.H., M.S. (P.H.), and M.S. (San. Eng.).
- VII. SCHOOL OF MEDICINE:
Leading to the degree M.D.
- VIII. SCHOOL OF LAW:
Leading to the degree LL.B.
- IX. SCHOOL OF PHARMACY:
Leading to the degrees Ph.C., B.Pharm., and B.S. (Pharm.).

- X. SUMMER SESSION.
- XI. UNIVERSITY EXTENSION DIVISION:
 - Correspondence-Study.
 - Study Classes.
 - Lectures and Addresses.
 - Social Centers.
 - Library Extension, and Bureau of Information.
 - Bulletins of Investigations.

ATTENDANCE.

The following is the attendance by departments for each year:

Year	Grad.	Arts	Eng.	Med.	Law	Phar.	Total, reg- ular, of Univ. Gr., exc. Dups	Summer School	Prep.	Normal	Grand total exc. Dups
1877-8	...	.....	.....	.....	.....	..	.....	.....	61	14	75
1878-9	...	12	.....	.....	.....	..	12	.....	56	22	90
1879-80	...	16	.....	.....	.....	..	16	.....	67	9	92
1880-1	...	13	.....	.....	.....	..	13	.....	61	7	81
1881-2	...	17	.....	.....	.....	..	17	.....	49	9	75
1882-3	...	11	.....	.....	.....	..	11	.....	54	17	82
1883-4	...	10	.....	1	.....	..	11	.....	76	13	100
1884-5	...	22	.....	19	.....	..	41	.....	58	...	99
1885-6	1	20	.....	13	.....	..	34	.....	55	...	89
1886-7	3	15	.....	5	.....	..	23	.....	78	...	101
1887-8	2	25	.....	10	.....	..	37	.....	71	20	128
1888-9	3	21	.....	15	.....	..	39	.....	73	17	129
1889-90	2	50	.....	23	.....	..	75	.....	74	4	153
1890-1	...	55	.....	15	.....	..	70	.....	105	...	175
1891-2	...	55	.....	11	.....	..	66	.....	103	...	169
1892-3	3	77	.....	26	23	..	129	.....	158	...	286
1893-4	5	85	.....	42	28	..	159	.....	146	...	305
1894-5	18	106	11	51	19	..	204	.....	192	...	396
1895-6	20	135	22	62	29	..	267	.....	242	...	509
1896-7	29	162	29	78	26	..	324	.....	276	...	600
1897-8	29	198	38	33	39	..	337	.....	273	...	610
1898-9	25	215	61	50	53	..	390	.....	310	...	700
1899-'00	22	252	64	61	46	..	433	.....	356	...	789
1900-1	17	256	80	60	62	..	466	.....	367	...	833
1901-2	22	263	103	63	73	..	510	.....	352	...	862
1902-3	19	269	123	63	60	..	531	.....	363	...	894
1903-4	23	312	142	52	62	..	581	.....	385	...	966
1904-5	33	381	173	53	61	..	685	60	415	...	1,143
1905-6	37	410	176	70	62	..	743	79	504	...	1,308
1906-7	38	473	215	58	69	..	840	98	527	...	1,450
1907-8	37	532	271	52	83	..	961	126	.....	...	1,044
1908-9	72	550	281	55	105	..	1,041	129	.....	...	1,128
1909-10	83	577	292	80	102	..	1,108	168	.....	...	1,221
1910-11	61	697	292	152	108	..	1,284	186	.....	...	1,411
1911-12	84	725	288	118	126	..	1,306	248	.....	...	1,474
1912-13	70	671	267	95	97	11	1,183	305	.....	...	1,419
1913-14	77	728	293	59	82	22	1,236	385	.....	...	1,559
	835	8,416	3,221	1,545	1,415	33	15,183	1,784	5,907	132	22,545

GRADUATES.

The following is a list of the degrees and certificates for each year:

Year	Hon.	Grad.	Arts	Eng.	Med.	Law	Phar.	Total	*Dip. Ed.	*Dip. Com.
1882....	1	.....	6	.....	.....	.....	.....	7	.....	.....
1883....	.....	.....	2	.....	.....	.....	.....	2	.....	.....
1884....	.....	.....	1	.....	.....	.....	.....	1	.....	.....
1885....	.....	1	.....	.....	2	.....	.....	3	.....	.....
1886....	.....	.....	7	.....	2	.....	.....	9	.....	.....
1887....	.....	2	2	.....	1	.....	.....	5	.....	.....
1888....	.....	.....	4	.....	1	.....	.....	5	.....	.....
1889....	2	.....	3	.....	1	.....	.....	6	.....	.....
1890....	.....	.....	3	.....	4	.....	.....	7	.....	.....
1891....	2	.....	9	.....	5	.....	.....	16	.....	.....
1892....	.....	.....	4	.....	1	.....	.....	5	.....	.....
1893....	2	2	10	.....	3	.....	.....	17	.....	.....
1894....	.....	1	10	.....	12	12	.....	35	.....	.....
1895....	1	4	12	.....	11	6	.....	34	.....	.....
1896....	.....	.....	11	.....	13	7	.....	31	.....	.....
1897....	.....	1	19	1	22	9	.....	52	.....	.....
1898....	1	5	21	3	.....	9	.....	39	.....	.....
1899....	1	5	20	12	.....	13	.....	51	.....	.....
1900....	1	7	28	5	7	.....	.....	48	.....	.....
1901....	.....	6	43	5	8	12	.....	74	.....	.....
1902....	1	9	33	8	13	14	.....	78	.....	.....
1903....	.....	4	28	13	8	11	.....	64	.....	.....
1904....	.....	12	47	16	14	20	.....	109	.....	.....
1905....	3	11	41	14	6	15	.....	90	.....	.....
1906....	2	12	64	14	16	12	.....	120	.....	.....
1907....	.....	9	53	19	12	16	.....	109	.....	.....
1908....	1	14	77	27	11	16	.....	146	8	.....
1909....	2	15	72	32	11	29	.....	161	22	.....
1910....	1	14	82	34	8	21	.....	160	28	.....
1911....	.....	15	96	37	39	27	.....	214	31	1
1912....	1	16	110	43	39	22	.....	231	49	.....
1913....	3	23	106	42	51	22	1	248	35	6
1914....	4	29	115	45	16	35	5	249	39	.....
	29	217	1,139	370	337	328	6	2,426	212	7

*These are given as evidence that certain specified courses have been included in the work for the B.A. and M.A. degrees.

GRADUATE SCHOOL.

The last biennium is marked by distinct progress in the Graduate School. Its rules have been thoroughly revised to strengthen its requirements and to facilitate its administration; its scope has been extended to include courses which lead to the degrees, Doctor of Ophthalmology, Master of Science in Public Health, Master of Science in Sanitary Engineering, and Doctor of Public Health; it has granted, as compared with thirty-one degrees for the biennium just preceding, fifty-two higher degrees as follows: Doctor of Philosophy, 3; Master of Arts, 33; Civil Engineer, 1; Electrical Engineer, 7; Master of Science, 2; Doctor of Ophthalmology, 6.

The Graduate School has up to the present rendered very valuable service with little financial support. This has been made possible by the interest and devotion of members of the Faculty already overburdened with undergraduate teaching. However, if the proper work of the Graduate School is not to be fatally handicapped in its further progress, means must be provided for its necessary equipment. There must be increased laboratory facilities for research; many books which are of fundamental importance must be added to the various departmental libraries; the periodical list must be supplemented by a large number of scientific and technical journals and publications of learned societies; above all is the need of providing more instructors for the undergraduate work so that the heads of departments and other professors may have time to devote to advanced teaching and research. These are the most pressing, immediate needs. There should also be established in the various departments fellowships to make it financially possible for students of proved ability to engage in work toward a higher degree in this University.

The rapid development of the Graduate School is of vital importance to the University and the State for these reasons:

1. The experience of universities in general has proved that a graduate school of a high order with a considerable group of selected students earnestly engaged in scientific research and in the investigation of the problems of society, is more effective than any other influence in creating throughout the University as a whole an atmosphere of serious-minded devotion to truth.

2. The University cannot maintain the standing which it deserves among the first institutions of the country unless the Graduate School is, in the matter of financial support, put on a par with the other schools of the University.

3. Citizens of Colorado should be provided with such facilities for advanced study and research in their own University as would make it unnecessary to go to other universities for this training.

4. Graduates from other institutions would come here in increasing numbers if in addition to the attractions of climate they could have the advantages of an excellent graduate school.

COLLEGE OF LIBERAL ARTS.

In the College of Liberal Arts there is to be noted a resumption of the rapid numerical increase that had temporarily halted at the time of the last report. This means that the College is again facing the urgent need of enlarging its teaching force and adding to the number of rooms available for class work. Fortunately it has been able to raise the standing of the junior teachers in almost every department; but it is to be hoped that progress in this respect is only a forerunner of further improvement. Each year of growth only serves to emphasize the importance of having a scholarly personality in even the minor teaching positions.

The question of adding to the scope of the curriculum must receive careful consideration during the coming biennium. There is a general feeling that the state universities should provide courses in Domestic Art and Domestic Science, wherein technical training shall be associated with sound general scholarship. At present the University of Colorado is doing practically nothing in this field. Similarly, it is felt that in a democratic community it is desirable to have students trained in Public Speaking, for which there is no adequate provision at present.

As a matter of special interest it may be pointed out that the claims of the young women for general hygienic guidance and adequate supervision in their exercise have been met by the appointment of a physical director devoting her whole time to their welfare.

With reference to the activities of the Faculty, it should be noted that many of its members, in addition to performing

their teaching and other duties, have found time to publish literary or scientific articles of genuine worth and interest.

A list of changes in the Faculty is appended, and this is followed by detailed reports of the various Colleges organized within the College of Liberal Arts.

Faculty.

The following promotions have been made in the last two years: Ralph D. Crawford, Ph.D., to be Professor of Mineralogy and Petrology, September, 1914; Max M. Ellis, Ph.D., Sc.D., to be Assistant Professor of Biology, September, 1914; C. Henry Smith, B.Ph., to be Assistant Professor of Bibliography, September, 1914; Carl C. Eckhardt, Ph.D., to be Assistant Professor of History, September, 1914; Miss Claribel Kendall, M.A., to be Instructor in Mathematics, September, 1913; Miss Ida M. Johnson, M.A., to be Instructor in Romance Languages, September, 1913; Miss Estelle M. Kyle, B.A., to be Instructor in Education, September, 1914; Miss Florence E. Galligan, M.A., to be Instructor in Education, September, 1914; the Secretaries of the College of Education, College of Commerce and the School of Social and Home Service, to be termed Directors, September, 1914.

The following appointments have been made: William A. Cook, Ph.D., to be Assistant Professor of Education, September, 1913; Charles E. Armstrong, B.A., B.P.E., to be Director of Physical Training and Athletics, September, 1913; Frederick W. Skirrow, Ph.D., to be Lecturer in Physics, September, 1913; Francis Wolle, B.A., to be Instructor in English Literature, September, 1913; Lorin T. Peters, B.Ph., to be Instructor in English, September, 1913; Landon M. Robinson, B.A., to be Instructor in English, September, 1913; Hector T. Madison, M.A., to be Instructor in Economics, September, 1913; Harry A. Aurand, B.A., to be Instructor in Education, September, 1913; Henry M. Sayre, to be Instructor in Accounting, February, 1914; Jay W. Woodrow, Ph.D., to be Instructor in Physics, September, 1914; Esbon Y. Titus, B.A., to be Instructor in Chemistry, September, 1914; Mrs. Anna H. Powless, M.A., to be Instructor in Education, September, 1914; Arnoid J. Lien, Ph.D., to be Instructor in Economics, September, 1914; Erskine R. Myer, B.A., to be Instructor in English, September, 1914; Miss Dorothy M. Burton, B.A., to be Instructor in English Literature, September, 1914; Miss Edna

M. Reynolds, M.A., to be Instructor in Psychology, August, 1914; Craig M. Bouton, B.A., to be Instructor in Chemistry, September, 1914; Eugene M. Kayden, M.A., to be Instructor in Economics, September, 1914; James N. Ashmore, to be Director of Physical Training and Athletics, September, 1914; Miss Helen M. Bunting, to be Director of Physical Education for Women, September, 1914.

The following deaths have occurred during the biennial period: William E. Dittman, Instructor in Accounting, January 22, 1914; George N. Rohwer, Instructor in Chemistry, September 19, 1914.

The following members of the Faculty have severed their connection with the University: Assistant Professor Charles H. Williams, B.S. in Ed., B.A., June, 1913; Miss Elva Cooper, M.A., June, 1913; S. Griswold Morley, Ph.D., June, 1913; Miss Ethel R. Ford, B.A., June, 1913; J. Warren Stehman, M.A., June, 1913; Leonard P. Fox, M.A., June, 1913; Homer S. McMillan, B.A., June, 1913; Charles E. Armstrong, B.A., B.P.E., June, 1914; Frederick W. Skirrow, Ph.D., June, 1914; Arthur G. Vestal, M.A., June, 1914; Miss Edna Potter, June, 1914; Miss Victoria H. Hazlitt, B.A., June, 1914; B. Howard Jackson, M.E., M.A., June, 1914; Lorin T. Peters, B.Ph., June, 1914; Hector T. Madison, M.A., June, 1914; Harry A. Aurand, B.A., June, 1914.

The following members of the Faculty have been granted leave of absence: Assistant Professor Harry A. Curtis, Ph.D., for the year 1913-14; Professor J. Raymond Brackett, Ph.D., for the year 1914-15.

THE COLLEGE OF COMMERCE.

The College of Commerce was organized in 1906. Its purpose is to provide a liberal education and at the same time to give a course of training which shall equip students to enter modern industrial and commercial life. With this end in view the first two years of the course are devoted to general cultural subjects, including English, Modern Languages, History, Science, or Mathematics; while the last two years are devoted primarily to more specialized business courses.

In addition to the regular courses offered, addresses are given before the school from time to time by prominent business

men on practical topics connected with the various subjects of study.

The courses in the College of Commerce are open to all students of the University and many students in other departments are taking advantage of the opportunities offered. The great interest shown in economic subjects will soon necessitate a readjustment of the work in the department and an increase in the teaching staff.

The demand for college training in Journalism has been continually increasing and this year an advanced course in editorial writing is being offered by the instructor in charge. Provision should also be made in the immediate future for additional courses in Accounting. More extended courses are needed also in Business Organization and Administration for both men and women who are intending to enter business pursuits. An additional instructor especially trained to give such courses is already urgently needed.

COLLEGE OF EDUCATION.

The College of Education—a reorganization of the Department of Education of the College of Liberal Arts—was established at the beginning of the year 1908-1909. The purpose of the College of Education is to train students for the service of the State in Education. It utilizes—specializes for this purpose—a part of the energies of the Faculty and some of the equipment of the College of Liberal Arts.

Students who complete, as a part of the Liberal Arts course, twenty hours of Education, receive, by an enactment of the Legislature of 1909, a state-wide license to teach. Those who take the full course of study of the College of Education receive the regular B.A. degree, the license to teach and a Bachelor's Diploma in Education. This last is comparable to a professional degree.

That a College of Education is a valuable asset to the State is readily seen when it is known that more than half of the teachers of the State have had no training beyond the high school and that many of them have not had that much. At present (first semester, 1914-1915) there are enrolled in the classes in Education 294 persons, of whom 89 are working for

the degree B.A., the Bachelor's Diploma in Education, and the State license. The remaining 205, presumably, are working for the State license. The Diploma has been granted thus far to 212 persons, the license to these and 99 others. Practically all are in responsible teaching and supervisory positions.

The Boulder Training School, under the direction of the College of Education, was organized in the Fall of 1913 to give practice, according to State law, to prospective teachers. This School is administered as one of the Boulder schools by the Professor of Education of the University in cooperation with the Superintendent of City Schools. An Instructor in Education is the Principal. The assisting supervisory force consists at present of two graduates of the College of Education. The enrollment of the school (pupils from the kindergarten to the eighth grade) is 107. Sixty-two "cadet teachers" are doing practice teaching. Additional facilities for practice teaching are afforded by the Boulder High School, so that some opportunity to instruct is offered in all grades from the kindergarten to the last year of high school. These facilities could be increased with advantage.

The minimum requirement for the B.A. degree and the Bachelor's Diploma in Education is 120 hours—that is, four years of work. It must include the following:

English Language	10 hours
Classics and Mathematics, Mathematics and Science, or Science and Classics.....	15 hours
History or Economics.....	6 hours
Psychology (General and Educational).....	6 hours
Principles of Education.....	6 hours
Principles and Practice of Teaching.....	6 hours
Philosophy or Sociology or additional Education or Psychology	6 hours
Group Electives, major and minors (subjects the stu- dent expects to teach).....	50 hours

THE SCHOOL OF SOCIAL AND HOME SERVICE.

This School was organized in 1912 and a year later a Preparatory Course for Nurses was added to the original course of study.

The aims of the School are: (1) to provide a two-years' course of training, which may be taken as an integral part of a

college course by young women who are planning to engage in some branch of social service; (2) to provide preliminary scientific training for those who may wish later to enter a training school for nurses; (3) to provide within a college course an opportunity for the study of those sciences most closely related to household management.

Problems of housing, food supply, prevention of disease, care of children and the sick, are dependent for their solution upon the subjects offered in this course of study.

The State Board of Charities reports a great need for competent nurses and adds that the schools for preparing them are too remote to supply the needs of this commonwealth. One of the important purposes of the School is to contribute toward meeting this demand.

THE SUMMER SESSION.

The enrollment in the Summer Session has increased continuously since its organization, as is shown by the following statistics of attendance:

1904.....	60
1905.....	79
1906.....	98
1907.....	126
1908.....	129
1909.....	168
1910.....	186
1911.....	248
1912.....	305
1913.....	385
1914.....	566

The marked increase during recent summers, the range of interests represented by the students and their extensive geographical distribution clearly indicate that the Summer Session is becoming widely and favorably known. It is a matter of general comment among students and non-resident members of the summer faculty that our rigid adherence to standards universally recognized, a cool summer climate affording most favorable conditions for sustained study, and rugged mountain scenery inviting to wholesome and invigorating recreation are destined

to attract, within a very few years, large numbers of students and make the University of Colorado an important center of vacation study.

The development of the Summer Session has a vital relation to the enlargement of the University's influence. Each year an increasing number of students, whose first acquaintance with the University was in connection with its advantages for summer study, matriculate as candidates for a degree, electing courses in the regular session, or pursuing work in the Extension Division. The membership of the Summer Session includes many men and women holding positions of responsibility as teachers or executives. The University, while performing a valuable service to education in responding acceptably to their needs, enlists in turn their valuable support and cooperation in extending a knowledge of the opportunities offered by its various schools and colleges.

The conclusion is, that the Summer Session should be viewed as an integral part of the University, entitled as such to sufficient support to meet growing demands. Each year the resources of the University's valuable plant have been utilized, standard courses have been offered by a strong faculty, students have been encouraged to regard themselves as members of a University community. But to ensure continued growth, it is imperative that the number and range of summer courses approximate the normal work of the regular curricula. For the accomplishment of this desirable end, the expense of equipment and plant would not be appreciably advanced, while the additional outlay in salaries would be largely reimbursed by the increased revenues from tuition fees.

There is one limitation of the University's material equipment, which, presenting a trying situation at all times, will soon seriously affect the work of the Summer Session. It speaks well for the earnestness and enterprise of the summer students that, while the enrollment at the last session was about 46 per cent. of that of the regular year, the inadequacy of the library building was more keenly felt than ever before.

COLLEGE OF ENGINEERING.

The aim of the College of Engineering is to give the student a liberal education and at the same time give him the necessary

scientific training for entering one of the engineering professions. While equipment and laboratories are important, a competent and efficient faculty is even more important. The teaching staff of the College of Engineering has been materially strengthened during the last biennium by the appointment of several additional instructors and the appointment of two additional assistant professors.

Faculty.

The following appointments have been made during the past two years: Joseph B. Morrill, E.E. (Colorado), Assistant Professor of Engineering Mathematics, September, 1913; Howard E. Phelps, B.S. (C.E.) (Colorado), Assistant Professor of Civil Engineering, February, 1914; Frank G. Allen, B.S. (M.E.) (Illinois), Instructor in Engineering Drawing, September, 1913; Charles S. Sperry, B.A., B.S. (C.E.) (Colorado), Instructor in Engineering Mathematics, September, 1913; William J. Christian, B.S. (M.E.) (Colorado), Instructor in Engineering Mathematics, September, 1913, Instructor in Mechanical Engineering, September, 1914; Tom A. Blair, B.S. (C.E.) (Colorado), Instructor in Civil Engineering, September, 1913; Charles M. McCormick, E.E. (Iowa State College), Instructor in Electrical Engineering, September, 1913; Clarence L. Eckel, B.S. (C.E.) (Colorado), Instructor in Civil Engineering, September, 1914; James J. Doland, B.S. (C.E.) (Colorado), Instructor in Engineering Mathematics, September, 1914; Walter F. Mallory, B.S. (M.E.) (Colorado), Instructor in Mechanical Engineering, September, 1914; James L. Merrill, B.S. (C.E.) (Colorado), Instructor in Engineering Drawing, September, 1914; Eduard F. Grundhoeffler, B.S. (M.E.) (Pennsylvania State College), Instructor in Mechanical Engineering, September, 1914; Matt W. Moyle, B.S. (M.E.) (Colorado), Heat Inspector and Assistant in Engineering Mathematics, September, 1914.

Whitney C. Huntington, C.E. (Colorado) was promoted from Instructor to Assistant Professor of Civil Engineering, February, 1914, and Frank S. Bauer, B.S. (M.E.) (Illinois) was promoted from Instructor to Assistant Professor of Mechanical Engineering, September, 1914.

Saul Epstein, Ph.D. (Zurich), Professor of Engineering Mathematics, resigned September, 1913, to accept a position as

Insurance Commissioner of Colorado; Clement C. Williams, C.E. (Colorado), Assistant Professor of Civil Engineering resigned February, 1914, to accept a position as Professor of Railway Engineering in the University of Kansas; and Frank L. Brown, B.S. (C.E.) (Colorado), Instructor in Civil Engineering, resigned June, 1913, to accept a position as Assistant Professor of Mechanics in the University of Kansas.

New Buildings.

The present engineering buildings are entirely inadequate, making it necessary to give instruction in overcrowded laboratories, drawing rooms and class rooms. It has been necessary to use most of the class rooms in the present engineering building for laboratories and drawing rooms requiring that most recitations in engineering subjects be held in other buildings on the campus. Much of the present equipment in the electrical, hydraulic and oil testing laboratories cannot be used effectively on account of lack of room. The freshman drawing room is overcrowded so that any increase in the freshman class will require an additional drawing room.

The increased attendance of engineering students for the past two years has taxed the facilities of the College of Engineering to provide instruction for the large freshman and sophomore classes. To provide reasonable facilities for the instruction of the large junior and senior classes next year and the year after will require additional buildings at once. A new engineering building with at least twice the capacity of the present engineering building will be necessary to provide drawing rooms, class rooms, an assembly room and minor laboratories; while the main laboratories should be provided for by an extension of the present shops. To provide temporary relief for the laboratories and drawing rooms will require the addition of approximately twice the floor space for the present shops building. This added room will furnish only temporary relief for the next year, or until the main engineering building can be finished.

The importance and value of a technical education to a young man have been emphasized by the continually growing preference given to technical graduates by the large manufacturing concerns, bridge shops and railroads. Formerly it was possible for a man with partial training to obtain a position in

engineering and to work up, but at present most railroads and other industrial concerns appoint only technical graduates to engineering positions where the men are in line for promotion, and the man who is not a technical graduate has no opportunity to enter engineering.

Research Work.

The following research work has been conducted during the past two years:

Department of Civil Engineering.

The Department has carried on investigations along the following lines, mostly in connection with thesis work:

1. Tests of Actual Stresses in a Highway Bridge.
2. Tests of Actual Stresses in Railroad Track.
3. Tests of Road Building Materials.
4. Tests of Steel, Cement and Other Building Materials.
5. Tests of Full Size Reinforced Concrete Beams.
6. Tests of Centrifugal Pumps.
7. Tests of Railway Ties.
8. Tests of Culvert Pipe.

Road Materials Testing Laboratory.—A Road Materials Testing Laboratory, equipped with apparatus necessary to make commercial and special tests of road materials, is operated in connection with the Applied Mechanics Laboratory of the Civil Engineering Department. This laboratory is operated in co-operation with the State Highway Commission and tests have been made of many of the different road-building materials in the State. Practically nothing has been done in connection with materials for building roads in Colorado and the results obtained in this laboratory will prove of material benefit to the State.

Department of Electrical Engineering.

The following lines of work have been carried on under the direction of the Department during the past two years, mostly in connection with thesis work:

1. Tests of Mechanical Properties of Transmission Line Material for the Colorado Power Company.
2. Operation Tests on Electric Passenger Elevator, First National Bank Building, Denver.

3. Operating Tests and Investigations for the Denver and Interurban Single Phase Electric Railway.

4. Extended Investigation of First Cost and Operating Expense of Alternating Versus Direct Current Railway Systems.

5. Investigation of Relative Costs and Merits of Various Systems of Pumping for Irrigation.

6. Tests of Line Losses and Load Distribution for the Western Light and Power Company.

7. Tests of Illuminating Power of Different Types of Locomotive Headlights for the Colorado and Southern Railway.

8. Breakdown Tests on Line Insulators, and Adjustment of Protective Spark Gap Around Insulator Strings, at High Voltage and High Frequency for the Colorado Power Company.

9. Leakage and Puncture Tests on Different Grades of Insulating Materials for the General Electric Company, Schenectady, N. Y. For the Purpose of Determining the Effect of Altitude on Above Characteristics.

Electrical Standardizing Laboratory.—This laboratory has been established at the University for the purpose of serving the power companies and industrial organizations in Colorado and surrounding states in the calibration and repair of all types of electrical measuring instruments and other electrical and mechanical apparatus at a minimum cost. The laboratory is prepared to make tests in the field when such are desirable.

A considerable number of the latest types of precision instruments have been added to the equipment.

With the assistance of this laboratory the Department has been able to build several pieces of apparatus of great value for experimental purposes.

Departments of Mechanical and Chemical Engineering.

The Departments have carried on or completed the following lines of investigation during the past two years:

1. Analysis of Colorado Coals.
2. Tests of Domestic Heating.
3. Investigation of Oils.

Oil Testing Laboratory.—A fully equipped oil testing laboratory has been established to make the tests of oils required by the State Oil Inspector. The investigation of many oils are being carried on in addition.

Railway Engineering.

To meet the demand for men with special training in the different lines of railway engineering work new courses have been outlined and are now offered in Railway Civil Engineering, Railway Electrical Engineering, and Railway Mechanical Engineering. The demand for men in railway engineering to carry on the work of valuation of the Interstate Commerce Commission, and to assist in railway construction and maintenance makes the courses in railway engineering very attractive.

Hydraulic and Sanitary Engineering.

The Civil Engineering Department is cooperating with the School of Medicine in giving courses in Public Health, and is prepared to give graduate work in Sanitary Engineering. To meet the needs of the State for trained men an undergraduate course should be offered in Hydraulic and Sanitary Engineering. This course would be administered by the Civil Engineering Department and will require additional laboratory and instructional facilities.

Department of Architecture.

A Department of Architecture should be established. Most of the work required for the course in Architecture is now given in the other departments and it will be necessary only to add those special courses that are peculiar to the profession of architecture. The surplus funds resulting from the Colorado State Architects' License Law are to assist in maintaining a Department of Architecture in the University. As a result of this law there is at present approximately \$5,000 in the hands of the State Treasurer available for the support of a Department of Architecture, and approximately \$700 will be added each year. There is no School of Architecture of standing nearer than that of the University of Illinois, and a course in Architecture in the University of Colorado will meet a very pressing need.

The Department of Architecture will require room for drawing rooms, recitation rooms, a library and a museum, which rooms are not available, and can only be provided by the completion of a main engineering building.

SCHOOL OF MEDICINE.

The problem of medical education at the University is complex but the opportunity presented is so great and the demand so pressing that the responsibility for meeting the situation cannot be avoided.

While marked progress has been made in the past, much is needed to put the School on a fairly even footing with its standard contemporaries.

New buildings in Boulder and Denver are imperative. The present building in Boulder, designed over twenty years ago for a small hospital, has naturally become entirely inadequate for teaching purposes. In Denver the situation is even worse. The present building, rented not owned by the University, is a former dwelling and in no way adapted for the purposes of the School.

In addition to buildings, more full-time salaried instructors are demanded. The standard laid down as minimum by the Council on Medical Education, the accepted authority in this field, calls for at least six men at the head of as many teaching departments devoting their entire time to teaching and research. Our School still falls short of even this minimum. The problem of satisfactory hospital and clinical facilities is also not yet solved but the relations between the City and County Hospital of Denver and the School of Medicine are cordial and negotiations are in progress pointing toward a close cooperation between the two institutions.

Of particular significance and value is the Denison Research Laboratory mentioned elsewhere and now in operation. This building is the home of the Department of Preventive and Experimental Medicine and bids fair to play an important part in the development of the public health work of the State. The growing demand for trained public health officials and the increasing tendency toward public health legislation, based upon modern scientific knowledge, constantly emphasize the need which this Memorial is designed to fill.

The changes in the teaching staff of the School of Medicine during the biennial period have been as follows: Doctors Sherman G. Bonney, Thomas H. Hawkins, William C. Mitchell, Edmund J. A. Rogers, and William J. Rothwell have retired as professors emeritus.

New appointments have been made as follows: Instructor in Anaesthesia, Dr. Robert L. Charles; Instructor in Medicine, Dr. Rudolph W. Arndt; Instructor in Neurology, Dr. Cyrus L. Pershing; Instructor in Ophthalmology, Dr. William H. Crisp; Instructor in Oto-laryngology, Dr. Claude E. Cooper; Instructor in Oto-laryngology, Dr. Edward W. Collins; Instructor in Pathology, Dr. Thomas F. Walker; Instructor in Surgery (Orthopedics), Dr. Henry W. Wilcox; Instructor in Surgery (Orthopedics), Dr. Samuel Fosdick Jones.

SCHOOL OF LAW.

The increased entrance requirements of the School of Law went into effect at the beginning of the last biennium. They have naturally resulted in a certain decrease in the attendance. The class of 1914 being the last to graduate under the former entrance requirements, it is expected that the School will soon reach its former numbers.

Since the last Report, fifty-seven graduates have been granted the degree of LL.B. There are now sixty-eight students taking regular law courses, while a considerable number from the College of Commerce are taking elementary law as a preparation for business careers.

In the last year the School has suffered greatly by death. The loss of Professor Pease, who died suddenly in August, 1914, is especially severe. Professor Pease had been continuously a member of the Faculty since 1901 and was one of the most valued members of the University. The School has also suffered by the deaths of Regent William H. Bryant, Lecturer in Mining Law, and Mr. Edwin Van Cise, Professor of Law.

The vacancies so caused have been filled as follows: Mr. Erwin L. Regennitter, a graduate of the School of 1895, takes the place of Professor Van Cise. Mr. James H. Brewster, formerly of the Faculty of Law of the University of Michigan, has been appointed Acting Professor of Law for the year 1914-15, and takes the work of Professor Pease in Real Property and Equity. Mr. Frank L. Moorhead, a graduate of the School of 1909, takes Professor Pease's work in Elementary Law and Contracts. With these exceptions, the Faculty remains the same as at the time of the last Report.

SCHOOL OF PHARMACY.

The Board of Regents in April, 1911, authorized the establishment of a School of Pharmacy to be a division of the School of Medicine. In June, 1913, the School of Pharmacy was organized as a separate department of the University.

The School was opened in September, 1911, and from the beginning has maintained a standard of requirements for entrance and graduation equal to the best schools of pharmacy in the country. Notwithstanding these high requirements, the growth of the School has been steady, increasing from two students the first year to twenty-six at this the beginning of the fourth year. This steady increase is the more satisfactory in view of the fact that more than seventy-five per cent. of the schools and colleges of pharmacy in the United States admit students on two years of preparatory school training or less.

Another compensating feature in the higher requirements is the fact that we receive a better class of students and are able to do better and more advanced work.

The School of Pharmacy offers three courses of study designed to prepare the student for the various fields of pharmaceutical industry. The two and three-year courses, while designed more especially to prepare students to fill responsible positions in the wholesale and retail lines, yet equip the more competent to serve as manufacturing chemists and analysts.

Graduates of the four-year course are prepared to take the civil service examinations for appointment as food and drug chemists and inspectors in the government service. Further, the enactment of food and drug laws by the Federal Government and the several states is creating an ever-increasing demand for competent and well-trained pharmacists and chemists in the field of drug and chemical manufacturing as well as in the State and Government service.

Although young, the School of Pharmacy has already outgrown its present building and further material growth will be greatly hampered until more suitable quarters are provided.

THE UNIVERSITY EXTENSION DIVISION.

The University Extension Division, the youngest of the constituent schools of the University, was formally organized in

June, 1912. Only a fortunate few have the privilege of being in residence at the University. It is no longer conceivable that the University has exhausted its duty and opportunity by putting its educational equipment at the service of this comparatively small number of young people, important as this function is. Its expert resources are too valuable an asset to the State to be thus limited. They should be at the disposal of individuals who cannot come within the college walls, and of communities which are seeking information and guidance in the solution of the complex problems of modern life. It was the appreciation of this fact on the part of the University, and its desire to be of the widest possible service in the State, that led to the organization of the University Extension Division, and it is with this broad purpose and spirit that the department is being administered.

The growth of the Extension Division has been gratifying. During the first year the formal enrollment of students was 275 in correspondence courses and study classes, while the informal services rendered reached a very large constituency. During the past year, the second year of the Division's organization, the formal enrollment doubled, reaching 550, while the number of individual correspondence students trebled. Meanwhile, the more general work of the Extension Division has also assumed new and wider aspects in the direction of social and community service. One illustration of this was the leadership of the Extension Division in the calling, during the past year, of the first Colorado Municipal Conference, which resulted in the formation of a State Municipal League, for the purpose of studying and improving living conditions in Colorado cities.

During the past year, by authority of the Board of Regents, an effort has been made to study somewhat the demands for vocational education in Colorado and to make a beginning in satisfying these needs. Lecture courses have been given in Business Organization and in Salesmanship, and correspondence work offered in elementary engineering mathematics. The aim of this sort of work is to provide further educational opportunities for young people who have left school and gone into business and whose efficiency both as workers and as citizens will be greatly increased by such training as is here offered. Because of its close touch with all parts of the State the University is better qualified to conduct such courses than are private

correspondence schools located in distant parts of the country, and can provide the work at greatly reduced cost to those who wish to benefit by it.

Each summer for the past two years the Extension Division has conducted at the University a Sociological Conference, of a week's duration, which is coming to be an influential factor in the State. At the Conference held in 1913 there were 200 different people in attendance at one or more sessions, representing seventeen States. The wide representation from various parts of the United States is due largely to the fact that the Conference is held in the midst of the Summer Session of the University which is attracting people from distant localities. At the Sociological Conference of 1914 there were 300 people in attendance. The State Board of Charities and Corrections held its semi-annual meeting in connection with this Conference and the public health officers of the State also adopted the program of one day as the program of their own conference. Eminent social thinkers and workers, both from this and other States, participated in these Conferences, and this mid-year gathering at the University has become an occasion for the serious discussing of important questions pertaining to the welfare of the State.

Of a somewhat similar character are the Community Welfare Conferences which are being undertaken this year in three or four cities in Colorado. The plan is to study a given community with a view to determining what phases of service the University can most helpfully render, and then to organize a three or four days' conference along these lines. Experts from the University will be on the program and the local welfare agencies of the community will be enlisted. This opens a promising field of University service, which is being undertaken in other states with marked success.

Hitherto the Extension work of the University has not been organized into formal departments, but has been conducted along several related lines of activity, as follows:

Correspondence-Study.—Offering University instruction by mail to the individual student.

Study Classes.—Consisting of groups of students, often public school teachers, who carry on connected courses of study under the direction of accredited instructors.

Lectures and Addresses.—Providing for instruction by lectures, either single addresses or courses, by members of the faculty.

Social Welfare.—Arranging Sociological Conferences for the discussion of social problems; establishing Social Centers where community life may gain effective expression; assisting in club programs; advising concerning municipal life and public health; and furthering social betterment in other ways.

Information and Library Extension.—Furnishing information upon request, and loaning books and package libraries to high schools for purposes of debate and discussion on questions of current interest.

Bulletins of Investigations.—Publishing in pamphlet form for public use the results of important investigations conducted by the University faculty.

The activities of the Extension Division have now reached a point where further development requires the organization of the work into districts and departments in the interest of increased efficiency. A beginning in this direction has already been made during the current year by the appointment of an Extension Superintendent for Western Colorado, with headquarters at Grand Junction, a step which should greatly increase the University's opportunities for service in this distant and isolated section of the State. Further district representatives should be appointed in strategic localities from time to time as the Extension work develops and resources make possible. These districts will need to be large at first, but should be diminished in size as the number of Extension workers increases. While some of these districts can wait, there is immediate and urgent need of an Extension Superintendent for Southeastern Colorado with headquarters at Pueblo. Here is a great industrial community that offers exceptional opportunities for just the kind of service that the University is qualified to render through its Extension Division.

Further assistance is needed in connection with University Extension instruction. Hitherto, the Division has had to rely almost entirely upon assistance from the regular departments of the University, whose time and energy is already taxed by their resident duties. An Extension Instructor for business courses is imperatively needed. Special instructors for other lines of

teaching are needed, also, unless it should be deemed best to accomplish the same end by an increase in the teaching force of some of the regular departments of the University upon which the demand for Extension teaching is greatest.

The entire State is open for Extension work, which is everywhere being welcomed and approved as an advanced step in educational progress. High-school graduates who are delayed in attending colleges; individual teachers in isolated districts, and city teachers in groups; young people who have been forced to drop out of college, and older people who never had a chance to go—these and others, detained from attending college by the necessity of making a living, are gladly availing themselves of the opportunities offered by the Extension Division of the University.

THE LIBRARY.

The report for the library covering the period from October 1, 1912, to September 30, 1914, is as follows:

Statistics and Growth.

Net total of volumes October 1, 1914.....77,174

Volumes accessioned during biennium—

Purchase	5,224	
Gift	7,720	
Exchange	1,074	
		<hr/>
		14,018

Volumes bound

2,796

Volumes rebound

601

Volumes repaired

735

Volumes withdrawn: Sold, 160; condemned, 213..

373

Volumes reported lost, later returned.....

42

Circulation—

Faculty	5,784	
Students	25,039	
Departments	7,230	
Extension	1,510	
Engineering library (one year)	1,333	
Education library (eight months).....	840	
Inter-library loans	38	
		<hr/>
		41,774

Inter-library loans from other libraries 362

Growth.—Growth of the library during this biennial period has been accomplished against a handicap of nearly eighteen months when departments have been decidedly limited in funds for book purchases.

Circulation.—Circulation figures have doubled. No attempt has been made to record the use of "reserve books" in the main library, or borrowed over night, but 140,000 would be a conservative estimate.

Purchases.—Principal purchases include North American Review, 85 v. (to complete); Nile's Weekly Register (complete); British Association for the Advancement of Science, 75 v.; Living Age, 236 v.; American Journal of Science, 70 v. (to complete); Harper's Weekly (complete); Blackwood's Magazine, 138 v. (to complete); American Catholic Quarterly Review, 31 v.; Bibliotheca Sacra, 61 v.; Independent, 20 v. (to complete); La Grande Encyclopédie, 31 v.; Allgemeine Deutsche Biographie, 56 v.; Great American Debates, 14 v.; Debater's Handbook Series, 19 v.; New Shakespeare Society Transactions (complete); United States catalogue (books in print, 1912); New International Encyclopaedia; late editions of New International, Standard and Century Dictionaries; National Cyclopaedia of American Biography; Encyclopaedia of Religion and Ethics; Cyclopaedia of Law and Procedure, 40 v.; Ohio Supreme, 42 v.; New York Supreme, 165 v.; Kansas Supreme, 29 v.; Iowa Supreme, 50 v.; Encyclopaedia of Evidence, 15 v.; American and English Annotated Cases, 28 v.; Words and Phrases, 8 v.; Vermont Reports, 17 v.; Federal Cases, 30 v.

Gifts.—Notable gifts include a memorial to Richard H. Whiteley, 1882, of 500 v., from Dean Fred B. R. Hellem; 300 v. of scientific journals and proceedings from the Colorado Scientific Society; 58 v. on Ophthalmology from Dr. Edward Jackson; the Jewish Encyclopaedia from the University of Colorado Menorah Society; 232 v. from President James H. Baker; 213 books and pamphlets from Mrs. Charles Denison, a memorial to her son; 70 v. from the Medical Society of the City and County of Denver; 45 v. of magazines from the Denver Public Library; 45 v. from the Inter-Collegiate Menorah Association; 108 v. of insurance reports from Commissioner Saul Epstein. The donation book records gifts of 3,977 books, 14,675 pamphlets, and 316 maps, donated by 152 individuals, 81 societies, 54 institutions,

80 colleges, 86 government and state officers, and 34 companies. Cooperation by members of the faculties is exhibited in gifts of nearly one thousand books.

Cataloguing.—The cataloguing has kept up with the accessioning. 41,000 cards have been added to the catalogues in the main library; 20,000 pamphlets have been sorted, the worthy ones bound, and analytical catalogue cards have been written.

Other Activities.

Library Extension.—Library Extension has been practiced along usual lines with an increasing number of regular borrowers. The new parcels post regulation has simplified transportation. The State Preparatory School Library and the Boulder Public Library have been given aid in reclassification and instruction in making new card catalogues. The Librarian has taken the initial steps to secure material for a municipal legislative reference bureau for local and State service.

Department Libraries.—The departmental libraries have developed rapidly. The Law Library now numbers over 6,000 volumes, the latest acquisition being a collection of State Session laws, Senate and House Journals. The Engineering Library has been moved to larger quarters. The Librarian in charge has perfected a card catalogue for all the books in the collection, and is now engaged in analyzing the Engineering journals and proceedings for the card catalogue. An assistant has been provided for the Geology Library and increased usefulness will result. Additional branch libraries have been established in the Denison Memorial Building and in the Pharmacy Building.

Publications.—“List of Serials in the University of Colorado Library”, compiled by C. Henry Smith and Faith E. Foster. (University Extension Division, General Series No. 6, Library Series No. 1).

“Writings and Addresses by Officers of the University of Colorado”, compiled by C. Henry Smith (General Series No. 69, Library Series No. 2).

Convention.—The Colorado Library Association met May 19-20, 1913, as guests of the University.

Staff.

Staff appointments include: Miss Florence Keep, 1914, appointed Engineering Assistant Librarian, September 1, 1913;

Miss Elizabeth Selleck, 1914, appointed Assistant Librarian, August 1, 1914, to fill vacancy caused by the resignation of Miss Elizabeth M. Phillips; Miss Martha J. Schoth, appointed Stenographer, August 1, 1914; Miss M. Jean MacDonald, 1918, appointed Geology Assistant Librarian, September 1, 1914.

THE MUSEUM.

Collections.

A total of about 40,000 specimens have been received during the past biennial period. A considerable part of this material has been collected by the Museum staff and other members of the Faculty. Material has been received as gifts and in exchange from 115 persons aside from the Faculty.

Mollusca.—16,557 specimens have been received and catalogued, including several hundred foreign species, besides several thousand which have not yet been catalogued. This brings the mollusk collection up to about 65,000 specimens.

Other Invertebrates.—A large display collection of Colorado butterflies has been installed, supplemented by as large a reserve collection of duplicates and species not displayed. Many insects of other orders have been added to the collection. A good start has been made upon the Crustacea, especially the Colorado species. A well prepared series of *Salpa* has been added to the display type collection of invertebrates.

Cold-blooded Vertebrates.—The collections of amphibians, reptiles and fishes, especially of Colorado, have now assumed great importance, and have made possible two full reports upon these faunas, one on the Amphibia and Reptilia of Colorado, the other on the Fishes of Colorado. There has been a large demand for these reports, particularly the latter, the supply of which is already nearly exhausted.

Warm-blooded Vertebrates.—Chief among the additions to the bird and mammal collections are a good series of mounted Guatemala birds and a large number of mammals from the eastern foothills and plains of Colorado.

Paleontology.—About 15,000 fossils have been added to the cabinets, chiefly invertebrates. The collection has been enriched by foreign species, besides many American species. All the

geological ages from Cambrian to recent are now represented. The fossils in the Museum aggregate 100,000 specimens.

Archaeology and Ethnology.—The most notable accession during the biennial period is the archaeological material from southwestern Colorado and northern New Mexico, obtained by excavation in the ancient ruins. It includes over 140 pieces of pottery, many of them unique, together with stone implements, matting, sandals and other articles. The collection is the more remarkable in view of the small amount of money expended in this work. The ruins of that region are being rapidly looted by men without scientific training or public spirit, and the contents scattered. It is exceedingly desirable that the scientific examination of this ancient culture be pushed as rapidly as possible, with adequate appropriations and equipment, in order that as much data as possible may be gathered while it is obtainable. Other notable accessions are the Dr. J. H. Todd stone implements from Ohio and Missouri (1,500 specimens), and the Dean A. Worcester Philippine collection.

Other Activities.

That the Museum is meeting a public need is shown by the increasing attendance, as well as by the great demand for information upon natural history and kindred subjects. Hundreds of inquiries are received each year, many coming from visitors in person, large numbers by mail. The accumulating material and data, and the growing card catalogue and index, now consisting of over 75,000 entries, are making this branch of work more and more useful to the public. Specimens are received for identification from many parts of Colorado and other States and from foreign countries.

Museum Needs.

The most imperative need of the Museum at present is additional space. Lack of space prevents the proper and orderly arrangement of display material in such way as to exhibit its real significance, and compels the crowding of material in such manner as to confuse the student. Much of the finest material on hand which should be on display for the benefit of all students and the general public, must be kept in drawer cabinets where it is available only to special students. With

100,000 fossils in the cabinets, less than 1,000 are on exhibition. Out of 65,000 mollusks in the cabinets, only 500 can be displayed, and those in many cases not the finest specimens, as a few large specimens would displace many smaller species. The same is true in other groups. In addition to the crowded condition of the Museum, the office and work-shop of the Curator and his assistants, paid and volunteer, is a room less than fourteen feet square. To make even a fairly representative display of material which should be available to the public would require three or four times the present floor space, making little allowance for future growth. Adequate work-shop, office room, photographic dark room and other space should be provided in order that the Museum may rise to its greatest usefulness. Adequate help should be provided, to carry on the work as it should be done. At present the Curator is dependent upon temporary help employed from time to time, mostly untrained students, and volunteer assistance. As soon as possible a trained preparator and general assistant should be employed permanently.

RELATION TO THE HIGH SCHOOLS.

All of the means by which the University attempts to keep itself helpfully related to the high schools of the State have been used during the past two years. The chief of these means, as was pointed out in detail in the last Biennial Report, are the High-School and College Conference; the visiting, inspecting and accrediting of high schools; cooperation with school officers in the selection and promotion of teachers; purely educational visits of various members of the faculty to schools and teachers' institutes; and the encouragement of visits to the University by high-school teachers and officers. The High-School and College Conference met in the Spring of 1913 and will meet again November 27 and 28, 1914. Full reports of these two meetings will be published shortly.

The usual inspecting and accrediting of high schools has been supplemented this past year by a careful survey of high-school conditions throughout the State. This survey has amounted to a careful "inventory"; the findings, which will be published this autumn, show clearly where Colorado stands

educationally in respect to high schools. That this has been a large undertaking, considering the fact that there has been no increase of force for this purpose, will be seen when it is pointed out that there are 247 high schools offering at least one year of work. There are 70 four-year high schools that are accredited and 60 that are not.

The placing and promotion of teachers has been still further developed and systematized and is yielding each year larger professional and educational returns on the investment. The visits of members of the faculty to the high schools and of high-school people to the University continue to yield satisfactory results. A number of projects for still more effective work and organization and for still more cordial relations will be discussed at the coming Conference.

NEEDS OF THE UNIVERSITY.

Reference has been made in the preceding pages to the pressing needs of the University in its various departments. The last Biennial Report of the Regents summarized the situation and the two years which have elapsed only serve to emphasize the Institution's needs.

The two-fifths mill rate, granted to the University in 1903, has been unchanged while the attendance has increased nearly 150 per cent. The increase in State valuation has been slight, and as a consequence, the necessity for additional maintenance is paramount.

Additional income should be provided which would allow for the development of the various schools of the University, for the addition of much needed instructors and for the improvement of the salary schedule throughout the University. There is not a department in which the demand for increased facilities is not pressing. A similar desperate situation exists with regard to buildings. Little has been added to the material equipment of the University in the last ten years, whereas the increase in number of students has been rapid. As noted in the last Report, at least ten buildings are needed without delay. Of these perhaps the most important are a woman's building and a man's building to serve as centers for the social life of the students as well as to provide gymnasium, dormitory and

other facilities. Medical buildings, both in Boulder and Denver, additional wings for the Library, added room for Engineering and Chemistry, the completion of the Museum Building and additional quarters for the College of Liberal Arts are only a part of the imperative demand.

REPORTS SUBMITTED.

We submit herewith the Treasurer's Report, Bursar's Fee Report, Bursar's Report, Report on Permanent Fund, Report on University Lands, Inventory of Property.

Respectfully submitted,

ETHELBERT B. ADAMS,
JULIUS C. GUNTER,
WILLIAM J. KING,
ANNA L. WOLCOTT VAILE,
MINNIE L. HARDING,
JAMES B. RAGAN,

Board of Regents.

LIVINGSTON FARRAND,

FRANK H. WOLCOTT,

President.

Secretary.

APPENDIX

TREASURER'S REPORT.

From October 1, 1912, to September 30, 1914.

General Fund.

October 1, 1912. Balance on hand.....	\$ 19,159.91
October 1, 1912, to September 30, 1914. Received from	
State Treasurer, University Tax Fund.....	329,677.58
State Treasurer, Land Income	9,229.78
F. H. Wolcott, Bursar	127,415.94
	<u>\$485,483.21</u>
Warrants paid and returned to Bursar.....	\$453,514.87
Balance on hand September 30, 1914	31,968.34
	<u>\$485,483.21</u>

Philo Sherman Bennett Fund.

October 1, 1912. Cash on hand.....	\$ 427.44
Interest Received	43.33
	<u>\$ 470.77</u>
Checks paid during period	\$ 20.00
September 30, 1914, balance	450.77
	<u>\$ 470.77</u>

William Porter Herrick Memorial Fund.

May 16, 1913. Received	\$ 5,000.00
Interest Received	294.00
	<u>\$ 5,294.00</u>
Checks paid during period	\$ 175.00
September 30, 1914, balance	5,119.00
	<u>\$ 5,294.00</u>

Edward G. Stoiber Scholarship Fund.

July 30, 1913. Received	\$ 2,085.75
Interest Received	129.96
	<u>\$ 2,215.71</u>

Checks paid during period	\$ 75.00
September 30, 1914, balance	2,140.71
	<hr/>
	\$ 2,215.71

Macky Bequest.

Cash in hands of Treasurer, October 1, 1912.....	\$ 1,919.57
Cash received from October 1, 1912, to Sept. 30, 1914..	6,611.78
	<hr/>
	\$ 8,531.35

Outstanding warrants, Oct. 1, 1912.....	\$29,400.00
Warrants issued Oct. 1, 1912, to Sept. 30, 1914	9,259.61
Unpaid balance	30,128.26
	<hr/>
	\$38,659.61
	<hr/>
	\$38,659.61

Cash in hands of Treasurer, Sept. 30, 1914.....	\$ 331.74
Cash in hands of Bursar, Sept. 30, 1914.....	30.00

Unpaid warrants—

*\$29,400.00
478.00
582.00
1,129.60 (Balance of \$4,000.00 loan.)
<hr/>
\$31,589.60

Fund of \$90,000.00 "Loan" for Macky Auditorium. Voted by the Eighteenth General Assembly—(50 Per Cent. Received).

Balance, October 1, 1912	\$6,197.09
Warrants paid from Oct. 1, 1912, to Sept. 30,	
1914	\$6,140.84
Balance in hands of Treasurer Sept. 30, 1914..	56.25
	<hr/>
	\$6,197.09
	<hr/>
	\$6,197.09

CHARLES H. CHENEY,

Treasurer of the Board of Regents of the
University of Colorado.

* The warrant for \$29,400, issued to Brown and Schrepferman, to apply on the general building contract has been recalled and notes given by the University, together with \$35,000 Colorado Funding Bonds, Series 1910, given as collateral security until the \$29,400 shall be paid.

BURSAR'S FEE REPORT.

From October 1, 1912, to September 30, 1914.

Receipts.

Cash on hand last report	\$ 293.05
Tuitions and matriculation from College of Liberal Arts and College of Engineering	39,513.00
Incidental fees	12,220.50
Tuition and fees from Law School	7,286.66
Tuition and fees from Medical School and Pharmacy..	11,495.00
Hospital Receipts	24,112.76
Summer School tuitions and fees	15,919.33
Chemistry fees	2,716.05
Engineering fees (1914)	266.00
Miscellaneous receipts	8,944.39
Room rents	2,019.11
Deposits	594.00
Fines	350.50
Sundry Laboratory fees	2,587.45
Express account from Registrar	100.00
High-School Visitor	100.00
	<hr/>
	\$128,517.80

Deposits with Treasurer, Etc.

Deposited with University Treasurer	\$127,415.94
Cash on hand	1,101.86
	<hr/>
	\$128,517.80

FRANK H. WOLCOTT,
Bursar.

BURSAR'S REPORT.

From October 1, 1912, to September 30, 1914.

Warrants issued in payment of expenses of the several departments of the University, during the biennial period, October 1, 1912, to September 30, 1914:

General Administration—Regents' service and mileage, President's and Secretary's salaries, salaries of the Registrar and his assistants, and all expenses of Registrar's office	\$ 35,288.93
College of Liberal Arts—Instruction and expense.....	165,300.33
Biology—Books, apparatus, supplies	1,806.77
Chemistry—Books, apparatus, supplies	9,493.00
Economics—Books	289.70
Education—Books, supplies (including clerical help in College of Education)	2,809.54
English—Books and apparatus	143.32
Geology—Books, apparatus, supplies	1,293.20
Germanic Languages—Books	257.00
Greek—Books	166.09
History—Books	300.55
Latin—Books	67.15
Literature—Books, apparatus	347.43
Mathematics—Books, apparatus	184.10
Museum—Books, apparatus, specimens, etc.....	2,212.81
Music—Books, supplies	27.45
Philosophy—Books, apparatus	101.62
Physics—Books, apparatus, supplies	1,230.39
Psychology—Books, apparatus, supplies	427.49
Romance Languages—Books	46.05
Zoology—Books, apparatus, supplies	138.97
University Extension—Books, supplies and expense..	1,395.11
College of Engineering—Instruction and expense	48,323.42
Civil Engineering—Books, apparatus, supplies	1,877.37
Electrical Engineering—Books, apparatus, supplies...	4,119.47
Mechanical Engineering—Books, apparatus, supplies..	2,194.44
Engineering Mathematics—Books, apparatus, supplies	108.42
General Engineering Drawing—Books, apparatus, sup- plies	339.58

Shops—Books, machinery, instruments, supplies	\$	930.44
School of Medicine—Instruction, apparatus, supplies, hospital, dispensary, nurses' cottage and other ex- pense (largely reimbursed by medical tuitions and hospital receipts)		65,269.51
School of Law—Instruction, library and other expense (partly reimbursed by tuitions)		18,936.83
School of Pharmacy—Instruction, books, apparatus, supplies		5,160.32
Summer School—Instruction and expense (reimbursed by tuitions)		14,507.94
Library—Services, books, periodicals, binding and sup- plies		18,468.69
Physical Training—Salaries, apparatus and expense...		4,502.90
Buildings and Grounds—		
Salaries (janitors, heating and lighting service, and care of grounds).....	\$37,995.82	
Repairs	6,075.56	
Insurance	2,389.16	
Water rent	1,689.80	
Fuel	19,670.61	
Horses	323.97	
Tools	394.58	
Unclassified	6,070.60	
New Buildings	4,397.79	
Improvements on buildings	4,140.92	
Improvements on grounds	2,913.94	
		\$ 86,062.75
Furniture and supplies		9,871.78
Printing		13,230.95
Stationery and Postage		4,890.28
Heat and Light Supplies		2,096.52
Telephone and Telegraph		1,993.67
High-School Visitation, Lectures by Faculty members, etc.		4,457.54
Advertising		3,651.93
Refunds (including fees to "Associated Students")....		12,679.18
General Unclassified (including interest)		15,606.36
Total for Biennial Period		\$562,607.29

Warrants issued not paid by October 1, 1912.....	\$ 2,975.29
Warrants issued not paid by September 30, 1914.....	1,786.02
	<hr/>
	\$ 1,189.27
Warrants issued from October 1, 1912, to September 30, 1914	\$562,607.29
Add	1,189.27
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Paid by University Treasurer	\$563,796.56
Total expenditure for Biennial Period	\$562,607.29
On new buildings (Museum, Denison and Hospital Wing, Auditorium)	4,397.79
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	\$558,209.50
Average annual expenditure, 1913, 1914 (not including new buildings)	\$279,104.75

FRANK H. WOLCOTT,

Bursar.

REPORT ON PERMANENT FUND.

From October 1, 1912, to September 30, 1914.

Balance October 1, 1912	\$31,480.63
Receipts from State Land Board	1,605.05
Accrued interest on warrants exchanged for bonds....	35,136.13
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Balance September 30, 1914	\$68,221.81
Amount invested in Colorado State Bonds.....	62,900.00
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Cash available September 30, 1914.....	\$ 5,321.81
Bonds covering the investment of \$62,900, are held as follows:	
With State Treasurer	\$27,900.00
With President of the University	35,000.00
	<hr/>
Total	\$62,900.00

M. A. LEDDY,
State Treasurer.

REPORT ON UNIVERSITY LANDS.

At the close of the biennial period, ending November 30, 1912, there remained in the University Fund 10,800.65 acres of land.

During the biennial period of 1913-14, 120 acres have been sold.

There is now under lease as follows:

	Acres
For grazing purposes.....	2,105.96
For agricultural purposes	400.00

Total acres under lease 2,505.96

The University lands are located as follows:

Number of acres in the reservation	4,680.00
Number of acres outside reservation	6,000.65

Total 10,680.65

VOLNEY T. HOGGATT,

Register.

INVENTORY OF UNIVERSITY PROPERTY.

October 1, 1914.

The following estimates, taken from inventories recently made, are presented as fair approximations:

Grounds.

Campus, sixty-three acres (estimated present value unimproved)	\$138,000.00
Twelve acres Stratton Field	12,000.00
Improvements, as fencing, grading, roads, walks, pipes, drains, lake, trees, bridges, athletic field	35,511.40
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	\$185,511.40

BUILDINGS.

(Approximate cost of each.)

Mackay Auditorium, expended up to October 1, 1914, about (cost completed about \$300,000).....	\$247,500.00
Liberal Arts Building	40,000.00

Library	\$ 76,500.00
Gymnasium	6,000.00
President's House	9,000.00
Woman's Building	6,100.00
Men's Club Building	4,800.00
Woodbury Hall	25,000.00
Brick House (1037 Regent Street)	1,000.00
Hale Science Building	87,200.00
New Science Building	55,500.00
Chemistry Building	43,500.00
Pharmacy Building	2,000.00
Engineering Building	50,200.00
Engineering Shops Building	32,500.00
Heating, Lighting, and Power Plant, including building, boilers, machinery, tunnel, pipes, wiring in building and tunnel, and extension of pipes and wires beyond tunnel, but outside of buildings....	112,000.00
Medical Building	9,500.00
Anatomy Building (with refrigerator)	3,300.00
Hospital	16,700.00
Nurses' Home	3,500.00
Simon Guggenheim Law Building	55,000.00
House, Superintendent Buildings and Grounds, 1045 Regent Street	1,500.00
Denison Memorial Building	21,000.00
Observatory	200.00
Ice House	200.00
Stables and Sheds	1,700.00
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	\$911,400.00

Furniture—Implements.

Room furniture, as chairs, settees, desks, tables, movable cases, pictures, office furniture, hospital and dormitory equipment, shades, janitor's supplies, gymnasium apparatus (value)	\$ 58,356.87
Team, implements, tools, carpenter's supplies, plumber's tools and supplies (value)	4,561.85
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	\$ 62,918.72

Library.

Library (value)\$119,548.00

Apparatus, etc.

College of Liberal Arts:

Biology (including Zoology)	\$ 5,135.55
Chemistry	13,130.22
Economics	172.00
Education (including Training School)	228.60
Geology	4,535.00
German	80.75
Greek	391.00
History	35.00
Latin	10.00
Literature	680.78
Mathematics	836.00
Museum	2,990.00
Music	238.26
Physics	11,941.90
Psychology	2,180.51
Romance Languages	10.00

College of Engineering:

Civil Engineering	16,333.90
Electrical Engineering	19,598.68
Mechanical Engineering and Shops	19,268.35
General Engineering Drawing	882.47

School of Medicine:

Medical, Anatomy and Pharmacy	11,283.58
Henry S. Denison Research Laboratory	1,657.60
Medical School, Denver	6,886.75
Hospital	2,313.70

School of Law:

Equipment	954.20
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\$121,774.80

Collections.

Art	\$ 1,899.00
Geological and Mineralogical	5,714.00
Museum (including Biological collection)	25,966.40

\$ 33,579.40

Summary.

Grounds	\$ 185,511.40
Buildings	911,400.00
Furniture, Implements	62,918.72
Library	119,548.00
Apparatus, etc.	121,774.80
Collections	33,579.40
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	\$1,434,732.32

UNIVERSITY OF ILLINOIS-URBANA



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